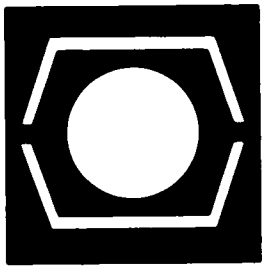

DECUS PROGRAM LIBRARY CATALOG

FOR

PDP-11

FEBRUARY 1974

DIGITAL EQUIPMENT COMPUTER USERS SOCIETY
MAYNARD, MASSACHUSETTS 01754 TEL. AC 617, 897-5111

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THE DECUS PROGRAM LIBRARY IS A CLEARING HOUSE FOR USER PROGRAMS. IT PROVIDES A REPRODUCTION AND DISTRIBUTION SERVICE ONLY. NO PROGRAMMING ASSISTANCE CAN BE GIVEN. IF A PROGRAM DOES NOT WORK AS STATED, THE PROBLEM SHOULD BE DOCUMENTED AND SENT TO DECUS. IT WILL BE FORWARDED TO THE AUTHOR FOR COMMENT. IF PROGRAMS FAIL TO WORK AS STATED BY THE AUTHOR'S DOCUMENTATION THEY WILL BE REMOVED FROM THE LIBRARY.

THE DESCRIPTION, SERVICE CHARGES AND AVAILABILITY OF THE SOFTWARE PRODUCTS DESCRIBED IN THIS CATALOG ARE SUBJECT TO CHANGE WITHOUT NOTICE. DISTRIBUTION SHALL BE IN ACCORDANCE WITH THE THEN STANDARD POLICY FOR EACH SUCH SOFTWARE PRODUCT.

EDITOR'S NOTE

Because it is not always possible to include all pertinent information in the brief program abstract, we recommend that users first order only write-ups when there is some doubt as to whether or not a specific program will fit the user's needs.

DECUS Program Library Contacts

Accounting or Pricing Information - Karen King - X2447

PDP-9, PDP-10, PDP-12, PDP-15 orders and information - Cheryl Barber X2524

PDP-8 library orders and information - Mary Hogan X2524

PDP-11, FOCAL8, BASIC8 orders and information - Stacia Taylor X2524

New or proposed library submissions, changes, etc., general library contents - Ferne Halley X2524

HOW TO USE THIS CATALOG
(And Subsequent Updates)

To make this DECUS catalog easy to use and easy to update, we have divided it into sections and numbered pages sequentially within sections. All pages are dated in the lower right hand corner so that, as revised or updated pages are received, the user can easily identify the most current page.

Generally, complete catalogs are printed every eighteen months with two "updates" in the interim. Updates contain replacements for any pages on which information has changed, and new pages pertaining to programs which have been added to the library since the previous catalog or update. When an update is received, revised pages should be inserted into the existing catalog, and the correspondingly numbered pages, with earlier dates, removed. New pages should be added to the appropriate sections.

GENERAL INFORMATION - gives details about ordering and charging and other information not carried in the Service Charge and Availability section.

OPERATING SYSTEMS - is a new service instituted by DECUS to make it easier for users of particular operating systems to determine which programs are written for, or will run under, that particular system. Because operating systems are not always specified on submittal forms, this information is somewhat fragmentary.

SECTION A - CATEGORY INDEX - Most DECUS programs have not yet been reclassified using the JUG category codes and are, therefore, announced in whichever of the seventeen existing DECUS categories seem to best describe them. If a program fits into more than one category, it is listed in each.

SECTION B - NUMERICAL INDEX - Sequentially numbered DECUS programs by title.

SECTION C - PROGRAM ABSTRACTS - Descriptive paragraphs of each DECUS program are included in this section.

SECTION D - SERVICE CHARGES AND AVAILABILITY - All material offered by DECUS for programs announced under Program Abstracts is noted on these pages. Usually the first copy of a program document or "write-up" is offered free of charge (NC). Any tapes, listings, card decks, etc. available from the DECUS library are indicated in the appropriate column by an amount which is the service charge for that material. Listings which are available as an attachment to the write-up are indicated by NC in the Listing column. NA in the Listing column indicates that DECUS does not offer a listing for distribution. A blank space beside any program number, under any heading, means that such material is not offered by DECUS for that program.

SECTIONS E, F and G pertain to programs written specifically for the RSTS operating systems. The first several programs in these sections were previously announced in the DECUS Program Library Catalog of Programs for Educational Application which is no longer published.

GENERAL INFORMATION

All DECUS service charges are to help defray the cost of reproduction, handling and postage. All orders must be accompanied by cash, DECUS Coupons or Purchase Order. Please make checks payable to DECUS.

Because of the difficulties encountered by many installations in obtaining Purchase Orders for small amounts, DECUS Coupons may be ordered for any amount and used as subsequent payment for DECUS services. Coupons are available in $1.00 and $5.00 denominations. They may be ordered as DECUS NO. 0051.

Payment for DECUS Coupons must be made in advance. Purchase Orders for coupons must be paid before coupons can be issued.

All charges are in U. S. dollars, and are subject to change without notice.

European Users - Payment may be made, in your currency, to: Martha Ries, Digital Equipment Co., Int'l-Europe, 81 Route de L'Aire, 1227 Carouge/Geneva, Switzerland. Please refer to currency exchange charts available from that office.

Service charge for DECUS Proceedings is:

Attendees - First copy free, additional copies $5.00 each
Non-attendees - $5.00 per copy

Charges for DECUS three-ring binders are:

One inch (1") Black Program Library Catalog Binder - $2.50
Two inch (2") Blue general DECUS binder - $3.50

In some cases it is possible to pack programs on DECtape. Such cases will be considered on an individual basis. Please contact the DECUS PDP-11 Library Controller for specific information.

Programs customarily distributed on paper tape will not be packed on DECtape.

A complete set of all current PDP-11 write-ups (RSTS excluded) is available for a service charge of $15.00. A complete set of all current RSTS write-ups is available for a service charge of $5.00.

When a large number of write-ups is ordered, but does not constitute a complete library, a service charge of 10¢ per write-up will apply.

OPERATING SYSTEMS

RSTS and RSTS/E	RSX-11D	DOS		FOCAL-11
See Section E	11-108 (11/45)	11-11	11-82	11-5
		11-21	11-83	11-9
		11-22	11-86	11-37
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		11-26	11-88	11-94
		11-32	11-89	11-105
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		11-50	11-92	
		11-64	11-98	
		11-65	11-99	
		11-68	11-100	
		11-69	11-102	
		11-70	11-106	
		11-73	11-109 (11/45)	
		11-75	11-111 (11/45)	
		11-78	11-112 (11/45)	
		11-80	11-113 (11/45)	
		11-81		

Programs not listed here are (for the most part) for 'core only' systems.

CATEGORY INDEX

I. PROGRAMMING LANGUAGE, MONITOR, PROGRAMMING SYSTEM

DECUS NO.	TITLE
11-34	PALEDIT
11-38	PAL-11A (12K) Card Reader Assembler
11-42	PAL8X (Stand Alone Version ØØ)
11-43a	DECtape Operating System
11-62	Procedure for Interfacing to FOCAL-11
11-63A.a	SYSGEN Procedure for SRL Magtape Operating System
11-63C.a	SRLSYS - Magtape System Monitor for PDP-11
11-63F.a	PAL-11M - Magnetic Tape Absolute Assembler
11-63G.a	PAL-11MR - Magnetic Tape Relocatable Assembler
11-63J.a	7 Track Magtape Containing Source Code for SRL Magnetic Operating System 12K
11-63K.a	9 Track Magtape Containing Source Code for SRL Magnetic Operating System RELEASE 2 for 12K
11-64	DOS VERSION OF BASIC
11-65	EDUALO - RKØ78
11-69	ML/I Macro Processor
11-70	DOS BASIC (SIMPLE VERSION)
11-73	LP and CR PDP-11 DOS Drivers for Use with A. B. Dick Videojet Printer
11-76	PDPAS - PDP-11 Assembler
11-84	IOXCRT - Input Output Executive with CRT and Hard Copier
11-85	IOXEXT - Input Output Executive Extended
11-86	EDDY - A Scope Oriented Editor for the PDP-11
11-93C	NPACK
11-95	Real-Time Overlay for 1-8 User BASIC-11
11-96	*1 (STAR ONE)
11-99	KTDVR - Keyboard Terminal Driver for DOS V^4 and V^8
11-108	TTYALL, Multi-Teletype Dispatcher

II. TEXT EDITING, TEXT MANIPULATION

DECUS NO.	TITLE
11-15	PDP-11 Datapoint Editor - JPEDIT
11-23	BINFED/DOS Based Binary Module List/ Patch Program
11-30	ENCODE/DECODE for PDP-11 FORTRAN IV
11-33	EDITX
11-34	PALEDIT
11-46	Two Conversion Routines EBTASC and ASCTEB
11-55	Modifications to ED-11 V004A
11-63E.a	ED-11M - Magnetic Tape Text Editor
11-86	EDDY - A Scope Oriented Editor for the PDP-11
11-90	Listing Program for a PDP-11 Computer
11-106	Assorted Routines for use with DOS-11
RSTS11-1a	EDITOR, V6A
RSTS11-2	UTILITIES, EDITORS and HANGMAN GAME
RSTS11-3	TEXT EDITOR FOR RSTS
RSTS11-5	CREATE and CREAT1
RSTS11-17	TEXTED
RSTS11-18B	GEDIT - GERMAN Data File Editor
RSTS11-28	Line Editor for RSTS-BASIC (MODIFY)
RSTS11-29	EDIT

III. DEBUGGING, DISASSEMBLY, SIMULATION, TRACE, DUMP

DECUS NO.	TITLE
11-8	Dump in Bootstrap Format Binary
11-13	ADUMP
11-20	Trace for PDP-11 Floating Point Package
11-22	DFPEEK/DOS Based Disk Inspect/Patch Routine
11-23	BINFED/DOS Based Binary Module List/ Patch Program
11-26	DSKSAV/DOS Disk SAVE/RESTORE
11-28	Extended ODT-11X
11-48	TRACE Debugging Program
11-50	UNPAL-11
11-52	ODT-11XR
11-58	ODT-11T
11-59	UNPAL-11A Mnemonic Dump
11-66	PALDMP. KØ42
11-74	ODT-11, ODT-11X, Revised
11-79	PDP-11 Reverse Assembler
11-83	KØ82.FILDMP With/PA(L11) Switch Option
11-97	PROCON-11
11-101	Conway's "Life," PAL-11S Version

IV. BINARY LOADING, BINARY PUNCHING

DECUS NO.	TITLE
11-4	PDP-11 Binary Loader
11-19	Core Load to MAINDEC Tape/MAINDEC Tape
11-21	CIOFB/DOS Based Overlay File Builder/ Editor (Version 3)
11-23	BINFED/DOS Based Binary Module List/ Patch Program
11-26	DSKSAV/DOS Disk SAVE/RESTORE
11-29	COPYTAPE
11-31	Binary Tape Interpreter/Address Scanner
11-32	MONUP - DOS Monitor Update Program
11-49	HELP Bootstrap
11-53	PDP-11/10 Loader
11-54	MAGTAPE LOADER
11-57	A General-Purpose External Function for PDP-11 BASIC
11-63H.a	LINK-11M
11-63I.a	LOAD-11M - Magnetic Tape Absolute Loader
11-75	LOADER
11-92	SAPLOD - Stand-Alone Program Loader for DOS
11-97	PROCON-11
11-102	FBTRAN - Formatted Binary Transfer
11-109	IOS - PDP-11/45 Formatted Input/Output Task Stacker and Processor

V. DUPLICATION, VERIFICATION

DECUS NO.	TITLE
11-11	PDP-11 DECtape Copy Routine
11-14	Paper Tape Duplicator (High Speed Reader to TTY)
11-29	COPYTAPE
11-31	Binary Tape Interpreter/Address Scanner
11-39	"SUPER DUPER" (Fast PDP-11 DECtape Duplication Routine)
11-63D.a	SRLPIP - A File Manipulation Utility for the PDP-11

VI. NUMERICAL FUNCTION, NUMERICAL INPUT/OUTPUT

11-1	Recursive Unsigned Radix Print
11-2	Single Precision Unsigned Multiply/Divide
11-9	Slow Matrix Inversion for Real Numbers
11-16a	FFT11C - A Fast Fourier Transform Subroutine for Complex Data
11-27	BIOF: BASIC Input/Output Function
11-30	ENCODE/DECODE for PDP-11 FORTRAN IV
11-57	A General-Purpose External Function for PDP-11 BASIC
11-68	ALGEBRA - A Program for Manipulating Logical Expressions
11-71	ACCEPT
11-105	POLFIT, A FOCAL Program to Fit Data to Polynomials up to 6th Degree
11-110	Utility Routines for a PDP-11/45 with a Floating Point Processor
11-112	Fast, Accurate Matrix Equation Solver and Matrix Inverter
11-113	READ - FORTRAN Compatible Free Format Input Routines

RSTS11-9	Project DELTA Educational Package, Section A, Mathematics Programs

VII. UTILITY

DECUS NO.	TITLE
11-19	Core Load to MAINDEC Tape/MAINDEC Tape
11-21	CIOFB/DOS Based Overlay File Builder/ Editor (Version 3)
11-22	DFPEEK/DOS Based Disk Inspect/Patch Routine
11-25	File Compatibility Package PDP-9/15 DECtape to PDP-11 DECtape
11-26	DSKSAV/DOS Disk SAVE/RESTORE
11-29	COPYTAPE
11-31	Binary Tape Interpreter/Address Scanner
11-32	MONUP - DOS Monitor Update Program
11-35	COMBINE
11-36	Parity Subroutine
11-40	DSKDMP and MTDUMP
11-46	Two Conversion Routines EBTASC and ASCTEB
11-50	UNPAL-11
11-51	PPMT and DUMPMT
11-53	PDP-11/10 Loader
11-60	DSKBOT
11-61	BXMIT
11-63B.a	IOXMTA - IOX Plus TU10 Magnetic Tape
11-63D.a	SRLPIP - A File Manipulation Utility for the PDP-11
11-66	PALDMP.K042
11-67	EBCDIC to ASCII MAGTAPE CONVERSION
11-68	ALGEBRA - A Program for Manipulating Logical Expressions
11-71	ACCEPT
11-75	LOADER
11-80	PARITY - Paper Tape Compatibility with I.C.L.
11-81	MTFDEL - TU10 7-track Magtape File Deletion Program
11-82	RK11 Disk to Disk Duplicator
11-83	K082.FILDMP with /PA(L11) Switch Option
11-86	EDDY - A Scope Oriented Editor for the PDP-11
11-87	CRTEXT
11-90	Listing Program for a PDP-11 Computer
11-91	BLDP11 Block Display Program
11-92	SAPLOD - Stand-Alone Program Loader for DOS
11-102	FBTRAN - Formatted Binary Transfer
11-106	Assorted Routines for use with DOS-11

RSTS11-2	UTILITIES, EDITORS and HANGMAN GAME
RSTS11-5	CREATE and CREAT1

VIII. DISPLAY

DECUS NO.	TITLE
11-45	DLINES
11-87	CRTEXT
11-91	BLDP11 Block Display Program
RSTS11-8	System Status Display - Hazeltine 2000

IX. DATA MANAGEMENT, SYMBOL MANIPULATION, SORTING

11-22	DFPEEK/DOS Based Disk Inspect/Patch Routine
11-23	BINFED/DOS Based Binary Module List/ Patch Program
11-25	File Compatibility Package PDP-9/15 DECtape to PDP-11 DECtape
11-27	BIOF: BASIC Input/Output Function
11-42	PAL8X (Stand Alone Version ØØ)
11-80	PARITY - Paper Tape Compatibility with I.C.L.
11-88	COMPU/CORDER PDP-11 DOS Driver or "How to Make a Cassette Behave Like DECtape"
11-89	ZERO
11-93B	SCORE
11-98	MASK
RSTS11-6	RESEQ - Program Resequencing

X. PROBABILITY, STATISTICS, CURVE FITTING

DECUS NO.	TITLE
11-77	PERMUT - Permutes a Given Sequence of Numbers
11-78	DFWFT - Discrete Fast Walsh-Fourier Transform Subroutine
RSTS11-10	Project DELTA Educational Package, Section B, Statistics Programs
RSTS11-30	COSAP - Conversationally Oriented Statistical Analysis Package

XI. SCIENTIFIC APPLICATION, ENGINEERING APPLICATION

11-12	AC Circuit Program
11-16a	FFT11C - A Fast Fourier Transform Subroutine for Complex Data
11-44	Electron Spin Resonance and General Integration Program
11-57	A General-Purpose External Function for PDP-11 BASIC
11-71	ACCEPT
11-78	DFWFT - Discrete Fast Walsh-Fourier Transform Subroutine
11-103	STRESS, A Finite Element Computer Program for Two-Dimensional Stress Analysis of Elastic Solids
11-104	HEAT, A Finite Element Computer Program for Two-Dimensional Steady-State Conduction Heat Transfer Analysis
11-111	"LEM" (Simulation of a Lunar Landing)
RSTS11-12	Project DELTA Educational Package, Section D, Electronics and Production Oriented Programs
RSTS11-27	GENES

XII. HARDWARE CONTROL

DECUS NO.	TITLE
11-17	TTY Code to Octal
11-41	DECtape Handler
11-47	External Functions for PDP-11 BASIC
11-55	Modifications to Ed-11 V004A
11-57	A General-Purpose External Function for PDP-11 BASIC
11-63B.a	IOXMTA - IOX Plus TU1Ø Magnetic Tape
11-81	MTFDEL - TU1Ø 7-track Magtape File Deleting Program
11-93A	ADC
11-97	PROCON-11
11-100	LP.PAL, SP.PAL; TTY Drivers for Printer, Punch and Reader of V4 Monitor
RSTS11-15	LSFORM - LS11 Centronix Line-Printer Driver for RSTS V4A

XIII. GAME, DEMONSTRATION

11-3	Dice Game for the PDP-11
11-5	Blackjack for FOCAL-11
11-10	PDP-11 BASIC Demonstration Package
11-37	Conway's Game 'LIFE'
11-56	Computer Dating
11-72	"3D-TIC-TAC"
11-101	Conway's "Life," PAL-11S Version
11-106	Assorted Routines for use with DOS-11
11-107	"The Hockey Game"
11-111	"LEM" (Simulation of a Lunar Landing)
RSTS11-2	Utilities, Editors and Hangman Game
RSTS11-13	Games, Puzzles and Recreation - 1
RSTS11-14	Games, Puzzles and Recreation - 2
RSTS11-18A	GERMAN - Adjective Ending Game
RSTS11-18B	GEDIT - GERMAN Data File Editor
RSTS11-19	FAST; ECONMY,ECON2; ONIONS
RSTS11-20	TREK - Star Trek Game
RSTS11-21	ROBOT and FIX
RSTS11-24	BPDEMO - Additional BASIC-PLUS Demos for the PDP-11

XIV. PLOTTING

DECUS NO.	TITLE
11-44	Electron Spin Resonance and General Integration Program
11-47	External Functions for PDP-11 BASIC
RSTS11-26	ROTATE, POLY, PLOT10, XYPLOT

XV. DESK CALCULATOR, BUSINESS APPLICATION

RSTS11-7	Accounting Package
RSTS11-11	Project DELTA Educational Package, Section C, Business Programs

XVI. MAINTENANCE

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XVII. MISCELLANEOUS

11-94	Transformed Z Scores
RSTS11-16	TALK - Inter-Terminal Communication Program
RSTS11-22	TUTRØ1-TUTR17, BASIC Tutoring Programs
RSTS11-23	NAMES and CEMGEN, Computerized Question Generation

PDP-11 NUMERICAL INDEX

DECUS NO.	TITLE
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11-2	Single Precision Unsigned Multiply/Divide
11-3	Dice Game for the PDP-11
11-4	PDP-11 Binary Loader
11-5	Blackjack for FOCAL-11
11-6	LINK-11S } Withdrawn - Available from
11-7	PAL-11S } DEC Program Library
11-8	Dump in Bootstrap Format Binary
11-9	Slow Matrix Inversion For Real Numbers
11-10	PDP-11 BASIC Demonstration Package
11-11	PDP-11 DECtape Copy Routine
11-12	AC Circuit Analysis Program
11-13	ADUMP
11-14	Paper Tape Duplicator (High Speed Reader to TTY)
11-15	PDP-11 Datapoint Editor - JPEDIT
11-16a	FFT11C - A Fast Fourier Transform Subroutine For Complex Data
11-17	TTY Code to Octal
11-18	PDUMP - DOS Based Register/Core Dump Subroutine - WITHDRAWN
11-19	Core Load to MAINDEC Tape/MAINDEC Tape
11-20	Trace for PDP-11 Floating Point Package
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11-22	DFPEEK/DOS Based Disk Inspect/Patch Routine
11-23	BINFED/DOS Based Binary Module List/ Patch Program
11-24	Withdrawn - FOCAL-11
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11-34	PALEDIT

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11-36	Parity Subroutine
11-37	Conway's Game 'LIFE'
11-38	PAL-11A (12K) Card Reader Assembler
11-39	"SUPER DUPER" (Fast PDP-11 DECtape Duplication Routine
11-40	DSKDMP and MTDUMP
11-41	DECtape Handler
11-42	PAL8X (Stand Alone Version ØØ)
11-43a	DECtape Operating System
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11-46	Two Conversion Routines EBTASC and ASCTEB
11-47	External Functions for PDP-11 BASIC
11-48	TRACE Debugging Program
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11-50	UNPAL-11
11-51	PPMT and DUMPMT
11-52	ODT-11XR
11-53	PDP-11/10 Loader
11-54	MAGTAPE LOADER
11-55	Modifications to ED-11 V004A
11-56	Computer Dating
11-57	A General-Purpose External Function for PDP-11 BASIC
11-58	ODT-11T
11-59	UNPAL-11A Mnemonic Dump
11-60	DSKBOT
11-61	BXMIT
11-62	Procedure for Interfacing to FOCAL-11
11-63A.a	SYSGEN Procedure for SRL Magtape Operating System
11-63B.a	IOXMTA - IOX Plus TU1Ø Magnetic Tape
11-63C.a	SRLSYS - Magtape System Monitor for PDP-11
11-63D.a	SRLPIP - A File Manipulation Utility for the PDP-11

DECUS NO.	TITLE
11-63E.a	ED-11M - Magnetic Tape Text Editor
11-63F.a	PAL-11M - Magnetic Tape Absolute Assembler
11-63G.a	PAL-11MR - Magnetic Tape Relocatable Assembler
11-63H.a	LINK-11M
11-63I.a	LOAD-11M - Magnetic Tape Absolute Loader
11-63J.a	7 track magtape containing source code for SRL Magnetic Operating System 12K
11-63K.a	9 track magtape containing source code for SRL Magnetic Operating System RELEASE 2 for 12K
11-64	DOS VERSION OF BASIC
11-65	EDUALO - RKØ78
11-66	PALDMP. KØ42
11-67	EBCDIC TO ASCII MAGTAPE CONVERSION
11-68	ALGEBRA - A Program for Manipulating Logical Expressions
11-69	ML/I Macro Processor
11-70	DOS BASIC (SIMPLE VERSION)
11-71	ACCEPT
11-72	"3D-TIC-TAC"
11-73	LP and CR PDP-11 DOS Drivers for Use with A. B. Dick Videojet Printer
11-74	ODT-11, ODT-11X, Revised
11-75	LOADER
11-76	PDPAS - PDP-11 Assembler
11-77	PERMUT - Permutes a Given Sequence of Numbers
11-78	DFWFT - Discrete Fast Walsh-Fourier Transform Subroutine
11-79	PDP-11 Reverse Assembler
11-80	PARITY - Paper Tape Compatibility with I.C.L.
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11-82	RK11 Disk to Disk Duplicator
11-83	KØ82.FILDMP with /PA(L11) Switch Option
11-84	IOXCRT - Input Output Executive with CRT and Hard Copier
11-85	IOXEXT - Input Output Executive Extended
11-86	EDDY - A Scope Oriented Editor for the PDP-11
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11-92	SAPLOD - Stand-Alone Program Loader for DOS
11-93A	ADC
11-93B	SCORE
11-93C	NPACK
11-94	Transformed Z Scores
11-95	Real-Time Overlay for 1-8 User BASIC-11
11-96	*1 (STAR-ONE)
11-97	PROCON-11
11-98	MASK
11-99	KTDVR - Keyboard Terminal Driver for DOS V^4 and V^8
11-100	LP.PAL, SP.PAL; TTY Drivers for Printer, Punch and Reader of V4 Monitor
11-101	Conway's "Life," PAL-11S Version
11-102	FBTRAN - Formatted Binary Transfer
11-103	STRESS, A Finite Element Computer Program for Two-Dimensional Stress Analysis of Elastic Solids
11-104	HEAT, A Finite Element Computer Program for Two-Dimensional Steady-State Conduction Heat Transfer Analysis
11-105	POLFIT, A FOCAL Program to Fit Data to Polynomials up to 6th Degree
11-106	Assorted Routines for use with DOS-11
11-107	"The Hockey Game"
11-108	TTYALL, Multi-Teletype Dispatcher
11-109	IOS - PDP-11/45 Formatted Input/Output Task Stacker and Processor
11-110	Utility Routines for a PDP-11/45 with a Floating Point Processor
11-111	"LEM" (Simulation of a Lunar Landing)
11-112	Fast, Accurate Matrix Equation Solver and Matrix Inverter
11-113	READ - FORTRAN Compatible Free Format Input Routines

DECUS NO. 11-1

Recursive Unsigned Radix Print

Stephen D. Piner
Submitted by: Gene E. Sengstock, Canberra Industries, Inc., Meriden, Connecticut

This subroutine converts unsigned single precision binary numbers to ASCII strings (blank suppressed) in a specified radix. The output routine (PUT) outputs the characters into an IOX compatible buffer. RDXPUT is recursive and requires two (2) words of PDL per character.

Minimum Hardware:	PDP-11/20, 4K Core, ASR33
Other Programs Needed:	Single Precision Integer Divide (DIVI) and IOX
Restrictions:	Radix must be $2 \leq R \leq 10$
Source Language:	PAL-11A

DECUS NO. 11-2

Single Precision Unsigned Multiply/Divide

Stephen D. Piner
Submitted by: Gene E. Sengstock, Canberra Industries, Inc., Meriden, Connecticut

This package provides routines to perform the following unsigned operations:

1. AC1 x AC2 ⟶ AC0, AC1
2. (AC1 x AC2) + AC0 ⟶ AC0, AC1
3. AC1 ÷ AC2 ⟶ AC1, R ⟶ AC0
4. (AC0, AC1) ÷ AC2 ⟶ AC1, R⟶ AC0

Minimum Hardware:	PDP-11/20, 4K Core, ASR33
Source Language:	PAL-11A

DECUS NO. 11-3

Dice Game for the PDP-11

Paul J. Bezeredi, Jr., Digital Equipment Corporation, Maynard, Massachusetts

This program enables the user to shoot dice using the PDP-11 computer. The program keeps track of all bets and gives a tally of winnings whenever you win or lose.

Minimum Hardware:	4K PDP-11 with Teletype
Restrictions:	DEC standard device registers and interrupt vectors are used
Source Language:	PAL-11A

DECUS NO. 11-4

PDP-11 Binary Loader

Richard Merrill, Digital Equipment Corporation, Maynard, Massachusetts

This is a modified absolute binary loader which uses the same locations as the old one, starts at the same starting address, has a bug fixed (!) and has a feature added so that it can be used in a device independent way.

It could be adapted to 96 words of ROM to serve as bin loader for all devices. Such an arrangement would require no bootstrap, free additional core space, obtain continual use of the ROM (not just an occasional boot) and when used as an automatic boot, it would get the system back on the air faster.

Minimum Hardware:	2K PDP-11
Other Programs Needed:	Bootstrap loader
Source Language:	PAL-11X

DECUS NO. 11-5

Blackjack for FOCAL-11

Richard Merrill, Digital Equipment Corporation, Maynard, Massachusetts

This program deals random Blackjack hands to itself (the dealer) and the user (the player). Utility functions are provided to deal and print card values.

Minimum Hardware:	4K PDP-11/20
Other Programs Needed:	FOCAL-11 (DEC-11-LFOCA-B-D); TEST
Source Language:	FOCAL

DECUS NO. 11-6

LINK-11S

Withdrawn from DECUS. Available from DEC Program Library

DECUS NO. 11-7

PAL-11S

Withdrawn from DECUS. Available from DEC Program Library

DECUS NO. 11-8

Dump in Bootstrap Format Binary

L. N. Daley, University of South Carolina, Columbia, South Carolina

This program may be used to have any area of care storage punched in bootstrap format. The program is loaded with the

DECUS NO. 11-8 (Continued)

bootstrap loader and is located in the area normally occupied by the absolute loader. It is a short routine which may be entered through the console.

Source Language: PAL-11

DECUS NO. 11-9

Slow Matrix Inversion For Real Numbers

Richard Merrill, Digital Equipment Corporation, Maynard, Massachusetts

This program will invert a matrix up to size 17 x 17, of real numbers using modified Gauss-Jordan methods. It uses double subscripts and can only be run on FOCAL-11 and FOCAL-15. It is quite reliable.

Minimum Hardware: PDP-11, ASR33, 4K
Other Programs Needed: FOCAL-11 (DEC-11-LFOCA-B-D)
Storage Requirements: This program uses essentially all core not used by the FOCAL operating system
Source Language: FOCAL-11

DECUS NO. 11-10

PDP-11 BASIC Demonstration Package

Submitted by: Richard Finn, Digital Equipment Corporation, Maynard, Massachusetts

This package contains a group of demonstration tapes, using the PDP-11 BASIC Assembler. A prior knowledge of the games involved is assumed. The demos are: FOOTBALL, ROCKET, WEEKDAY, CRAPS, CIVIL WAR and SNOOPY. Package contains no documentation, tapes only.

Source Language: BASIC-11

DECUS NO. 11-11

PDP-11 DECtape Copy Routine

William F. Godwin, Educational Testing Service, Princeton, New Jersey

This is a DECtape copy routine which operates under the PDP-11 Disk Monitor System. It is useful for generating exact duplicates of DECtapes for backup or distribution.

An initial dialogue establishes the drive numbers for the original and the copy, and allows the user the option of verifying the copy. Information is then transferred, a buffer-load at a time, from the original to the copy. To verify the copy, the routine will reread both the original and the copy after each transfer, and compare the two word-for-word. If an error is found, up to five attempts will be made to recopy and reverify the information before typing an error message. I/O errors will also force five retries before an error message is given. 8K and 12K versions are included on the tape.

Minimum Hardware: 8K of core; 2 DECtapes; Monitor Support

DECUS NO. 11-12

AC Circuit Analysis Program

Steve Hort
Submitted by: Charles H. Conley, Digital Equipment Corporation, Maynard, Massachusetts

This BASIC program analyzes the AC frequency response of a linear network given specific data concerning circuit elements, which may include: resistors, inductors, capacitors and independent and dependent voltage and current sources.

Minimum Hardware: 8K PDP-11 (Probably most other computers supporting BASIC)
Other Programs Needed: BASIC Compiler or Interpreter
Source Language: BASIC

DECUS NO. 11-13

ADUMP

Karl H. Lederer, Digital Equipment Corporation, Anaheim, California

This is a utility core dump program. It is coded to be position independent and is designed to function in the Paper Tape System environment. It expects the user to give, on the switch register, the starting address for dumping and the number of words to dump. It provides ASCII as well as octal representation of core.

Minimum Hardware: PDP-11/20, PC11, HSR/P, ASR33
Restrictions: Load with PTS absolute loader
Source Language: PAL-11A

DECUS NO. 11-14

Paper Tape Duplicator (High Speed Reader to TTY)

John E. Bowdle, Goodyear Atomic Corporation, Piketon, Ohio

This utility program is convenient for duplicating paper tape of any format. A block of 200_8 characters is read into memory and duplicated at Teletype rates. Since the Digitronics tape reader does not have an out-of-tape detector, the program sets a time out counter to detect the end of a tape.

Minimum Hardware: PDP-11/20, High Speed Tape Reader (Digitronics Model 2540 without end-of-tape detector), ASR Teletype
Other Programs Needed: Binary Loader
Source Language: PAL-11A

DECUS NO. 11-15

PDP-11 Datapoint Editor, JPEDIT

Dr. James E. Parker, Central Intelligence Agency, Washington, D. C.

This PDP-11 Datapoint Editor is equally adapted for creating programs or plain text. It has the usual features of append, insert, delete, change, punch, read tape, and make a hard copy. The program operates on the whole text, which resides in core, and two pointers are used to control the operations. Commands are available to move the pointers by lines or by characters. A search command is available which will locate an arbitrary string, after which one or both of the pointers may be positioned at either end of the string. The program is readily adaptable to other hardware configurations including communications lines to other computers. The interface to the datapoint terminal is a DC-11-AC.

Minimum Hardware:	8K PDP-11, Datapoint 3300 Terminal or substitute, Reader/Punch, Line Printer
Source Language:	PAL-11

DECUS NO. 11-16a

FFT11C - A Fast Fourier Transform Subroutine For Complex Data

Robert Day, Digital Equipment Corporation, Maynard, Massachusetts

FFT11C is a subroutine written for the PDP-11/20 with EAE for performing a forward or inverse Fast Fourier Transform of N complex data points where N is a power of 2 in the range ($8 \leq N \leq 1024$). A sample size of 1024 points is transformed in 1.6 seconds. About 3K of core storage is required. It is designed to run within the user's main program.

Minimum Hardware:	4K PDP-11/20 with KE11-A EAE unit
Storage Requirement:	2986 words
Source Language:	PAL-11A

DECUS NO. 11-17

TTY Code to Octal

John E. Bowdle, Goodyear Atomic Corporation, Piketon, Ohio

This is a convenient program for use in verification of the teletype keyboard operation. The operator may type any key and the program will return the three digit ASCII code in octal as presented in the appendix of most DEC handbooks.

Minimum Hardware:	PDP-11/20; Teletype with standard register locations
Other Programs Needed:	Absolute Binary Loader
Source Language:	PAL-11A

DECUS NO. 11-18

PDUMP - DOS Based Register/Core Dump

WITHDRAWN

DECUS NO. 11-19

Core Load to MAINDEC Tape/MAINDEC Tape

Gary D. Schaal, Digital Equipment Corporation, Phoenix, Arizona

This is a Core to DECtape dump so that at later dates the second halt can be used for faster loading of MAINDECs, systems programs, games, etc.

Minimum Hardware:	PDP-11 (15 or 20) with 4K of core, Teletype and 1 TU56/TC11
Source Language:	Machine Language

DECUS NO. 11-20

Trace for PDP-11 Floating Point Package

William R. Lamb, Transaction Technology, Cambridge, Massachusetts

The trace routine permits the user of floating point operations the option of displaying the results of calls to any subroutines in the floating point package. As each call is made via the modified trap handler, the trace will print (1) the program counter at the point of the call, (2) the destination address (in octal) for the result of the operation and (3) the result itself. The proper conversion routine is automatically selected: E - format for all floating point results, Integer format if fixed point. The trap handler replaces module 9 of the Floating Point Package. (Version VØØ5A)

Minimum Hardware:	PDP-11/20 with 4K memory, ASR-33 TTY
Storage Requirement:	446 additional locations for the trap handler
Source Language:	PAL-11

DECUS NO. 11-21

CIOFB/DOS Based Overlay File Builder/Editor (Version 3)

J. Eric Pollack, Department of Oceanography, University of Washington, Seattle, Washington

CIOFB builds and edits files of overlays on DECtape or system disk. It can be used to selectively replace system overlays or create a SYSLOD-like boot tape.

Minimum Hardware:	DOS system with RF11:disk
Storage Requirement:	12100_8 bytes
Restrictions:	Requires RF11:disk
Source Language:	PAL-11

DECUS NO. 11-22

DFPEEK/DOS Based Disk Inspect/Patch Routine

J. Eric Pollack, Department of Oceanography, University of Washington, Seattle, Washington

DFPEEK is used to read, display and patch the contents of any block on the DF: device. The contents of the block are displayed in octal, unpacked RAD50 and ASCII. Multiple blocks may be listed on KB:. No provision is made for dumping to LP:.

Minimum Hardware:	PDP-11/20 disk system
Other Programs Needed:	DOS
Storage Requirement:	2120_8 words
Source Language:	PAL-11

DECUS NO. 11-23

BINFED/DOS Based Binary Module List/Patch Program

J. Eric Pollack, Department of Oceanography, University of Washington, Seattle, Washington

BINFED is used to edit object or load modules created under the PDP-11 PTS or DOS. Binary records are read, displayed and written to an output file. The operator has options of correcting the contents of or inserting records in the output file.

Minimum Hardware:	8K DOS system
Storage Requirement:	3074_8 words
Source Language:	PAL-11

DECUS NO. 11-24

FOCAL-11 -- WITHDRAWN

DECUS NO. 11-25

File Compatibility Package PDP-9/15 DECtape to PDP-11 DECtape

Jack Delay, Oregon Research Institute, Eugene, Oregon

This package provides software to translate multiple ASCII files from PDP-9/15 formatted DECtapes to a format compatible with the PDP-11 DECtape file structure and vice-versa. It allows the use of peripherals on one machine by users on the other as well as editing (particularly with the more powerful 11 Editor for PDP-9 files).

Minimum Hardware:	8K PDP-9/15 with DECtape
Restrictions:	Manipulates ASCII files only. Creates "Read Only" files for PDP-11
Source Language:	MACRO-9

DECUS NO. 11-26

DSKSAV/DOS Disk SAVE/RESTORE

Paul Boltwood, Computing Devices of Canada, Ottawa, Ontario, Canada

This program runs under DOS to dump all used sectors of the system RF11 disk onto paper tape. It is capable of restoring DOS to disk in about 10 minutes which is much faster than the DEC SYSGEN method for people without DECtape.

Minimum Hardware:	8K PDP-11, RF11 disk, PR and PP, TTY
Restrictions:	Only works for RF11 disk, 1 surface
Source Language:	PAL-11R

DECUS NO. 11-27

BIOF: BASIC Input/Output Function

Mary D. Cermak, Case Western Reserve University, Cleveland, Ohio

This program allows users of BASIC the option of execution time data I/O on the high speed reader and punch. It utilizes BASIC's EXF option, is readily loaded and requires minimal change to present programs. Features include:

1. No limit on number of input tapes
2. Ability to punch leader
3. Variety of allowable delimeters on input
4. Punched output formatted for immediate input.

Minimum Hardware:	PDP-11 with BASIC, ASR33, HSR/P
Other Programs Needed:	BASIC
Source Language:	PAL-11A

DECUS NO. 11-28

Extended ODT-11X

Willis E. Herr, System Development Corporation, Santa Monica, California

This program allows, in addition to existing ODT capabilities, the initiation of binary and octal dump via TTY input and also allows any area of core to be initialized to any value, also via TTY input.

Source Language:	PAL-11A

DECUS NO. 11-29

COPYTAPE

William H. Talbot, Johns Hopkins University School of Medicine, Baltimore, Maryland

COPYTAPE efficiently duplicates formatted binary tapes. It recognizes the Absolute Loader's transfer blocks and gives the user the option of deleting them. Thus it can be used to link absolute binary subroutines to a main program on a single tape.

Minimum Hardware:	4K PDP-11, TTY, HSR/P
Other Programs Needed:	IOX
Source Language:	PAL-11A

DECUS NO. 11-30

ENCODE/DECODE for PDP-11 FORTRAN IV

J. Eric Pollack, Department of Oceanography, University of Washington, Seattle, Washington

These routines implement the ENCODE/DECODE format transfer statement for FORTRAN programs.

Minimum Hardware:	Sufficient to support FORTRAN
Other Programs Needed:	FORTRAN OTS support subroutines
Storage Requirement:	254_8 bytes
Restrictions:	These routines were written with OTS version 2 and will not work with version 1
Source Language:	PAL-11

DECUS NO. 11-31

Binary Tape Interpreter/Address Scanner

John E. Bowdle, Goodyear Atomic Corporation, Piketon, Ohio

This program reads PDP-11 binary tapes in the optical tape reader and prints an octal image of the tape on the teletype. The block checksum is verified. An alternate version determines only the addresses used. The user may use ODT to insert the few patches needed for the address only version.

Minimum Hardware:	4K PDP-11/20, TTY and optical tape reader with standard addresses
Other Programs Needed:	Binary loader
Storage Requirement:	4-36, 600-3230, Auto-start, RA=600
Source Language:	PAL-11A

DECUS NO. 11-32

MONUP - DOS Monitor Update Program

J. Eric Pollack, Department of Oceanography, University of Washington, Seattle, Washington

MONUP performs a function very similar to the distributed system program MODS. MONUP merges updated load modules with a file consisting of a series of concatenated load modules. MONUP is used to update the MONLIB.SYS file for input to SYSLOD. MONUP does not transfer the boot and SYSLOD as does MODS and is not limited to paper tape input.

Minimum Hardware:	RF11 and DECtape, 8K
Source Language:	PAL

DECUS NO. 11-33

EDITX

J. Eric Pollack, Department of Oceanography, University of Washington, Seattle, Washington

EDITX is a modification to the distributed Editor for the PDP-11 (DEC-11-EEDA V002A). It incorporates a new command (EN) to permit redefinition of primary input and primary output files at any time during edit.

DECUS NO. 11-34

PALEDIT

Thierry Monnerot, IMAG Institut Polytech, Grenoble, France

This program allows direct assembly of text stored in the Editor buffer and allows easy transfer between Editor and Assembler, facilitating re-editing and re-assembly.

Minimum Hardware:	8K PDP-11, ASR33 (PC11 optional)
Other Programs Needed:	Standard Loaders
Restrictions:	4K Editor/Assembler features only
Source Language:	PAL-11

DECUS NO. 11-35

COMBINE

Thierry Monnerot, IMAG Institut Polytech, Grenoble, France

The program combines multiple binary tapes into a single tape, deleting all END Blocks except the last.

Minimum Hardware:	4K PDP-11, ASR33 (PC11 optional)
Other Programs Needed:	Standard loaders
Storage Requirement:	2000-3470 plus IOX
Source Language:	PAL-11

DECUS NO. 11-36

Parity Subroutine

Ray Jones, Digital Equipment Co., Ltd., Reading, England

This is a 10 instruction parity checking subroutine with a simple driving program.

Minimum Hardware:	4K PDP-11, ASR33
Storage Requirement:	10 locations
Source Language:	PAL-11

DECUS NO. 11-37

Conway's Game 'LIFE'

Werner Ferch, McGill University, Montreal, Canada

This program will transform successively an initial pattern and plot the new pattern on the teletype. It uses John Conway's algorithm for the transformation. It uses double subscripts and can only be run on FOCAL-11 and FOCAL-15. To get maximum benefit, the user should read 'Scientific American,' October 1970, Mathematical Games.

Minimum Hardware:	4K PDP-11, ASR33
Other Programs Needed:	FOCAL-11
Storage Requirement:	Essentially all core not used by FOCAL Operating System
Source Language:	FOCAL-11

DECUS NO. 11-38

PAL-11A (12K) Card Reader Assembler

Willis E. Herr, System Development Corporation, Santa Monica, California

The standard PAL-11A (8K) VØØ6A assembler was modified to accept card input (Ø29 punch). A separate tape supplied allows the conversion table to be modified for Ø26 punched cards. All original features of PAL-11A remain available.

Minimum Hardware:	PDP-11 with 12K core, TTY, Card Reader
Source Language:	PDP-11 Assembly

DECUS NO. 11-39

"SUPER DUPER" (Fast PDP-11 DECtape Duplication Routine)

Michael Craven, Digital Equipment Corporation, Mountain View, California

This routine will copy or verify blocks Ø through 1Ø77 from DECtape unit Ø to DECtape unit 1 in approximately two minutes by just following the simple interactive command sequence as directed from the console teletype. Any DECtape errors encountered are fully diagnosed and printed in plain English on the TTY. The routine will then restart with a new command dialogue.

Minimum Hardware:	8K PDP-11, TC11/TU56 Dual DECtape Control/Transport
Storage Requirement:	12000-35742
Source Language:	PAL-11R

DECUS NO. 11-40

DSKDMP and MTDUMP

Barry A. Kaplan and Stan Shell, EPSCO, Inc., Westwood, Massachusetts

DSKDMP allows the user to transfer any portion of the disk (track addresses only) to the magtape or line printer. It provides an ideal way to create a backup copy of the disk on magtape by transferring all 128 tracks of the disk.

MTDUMP allows the user to transfer a file created by DSKDMP onto the line printer or onto the disk beginning at any track address. It is used to recreate the disk.

Minimum Hardware:	PDP-11/20, KE11A, DATUM 9 track magtape, LOGOS 132 column line printer, RS/RF11 disk, ASR 33 teletype, PC11 High Speed Reader
Other Programs Needed:	All necessary routines are included in the package
Storage Requirement:	Minimum 8K
Restrictions:	Applicable for only one (1) disk plotter
Source Language:	PDP-11 Assembler Language (relocatable)

DECUS NO. 11-41

DECtape Handler

Dr. Rudolf Albrecht and Dr. Peter B. Boyce, Lowell Observatory, Flagstaff, Arizona

This program performs block search, WDATA and RDATA functions of the DECtape on interrupt. Reading and writing is done in a forward direction only. Block search is bi-directional. The program has not been checked for relocatability.

Minimum Hardware:	4K PDP-11 and DECtape
Storage Requirement:	400_8 words
Source Language:	PAL-11

DECUS NO. 11-42

PAL8X (Stand Alone Version ØØ)

Paul J. Bezeredi, Jr., c/o AMBRIEX, S. A., Rio de Janeiro, Brazil

PAL8X assembles PDP-8 code on the PDP-11 computer. It is compatible with PS/8, PAL8 and 8K PALD with some extra features added. Provisions for high speed reader/punch and line printer are also included.

The program uses all available memory.

Minimum Hardware:	PDP-11, ASR33
Storage Requirement:	0-12260
Source Language:	MACRO-11

DECUS NO. 11-43a

DECtape Operating System

Tom Gifft, T. H. Gifft Co., Inc., Anaheim, California
Submitted by: Karl H. Lederer, Digital Equipment Corporation, Anaheim, California

This DECtape Operating System essentially substitutes DECtape for paper tape in the editing, assembly, storage, and retrieval of programs. All operation is accomplished from the keyboard. Utility programs for tape duplication, formatting and others are provided.

Note: Binary program and listing are available from the author upon request. The user must contact the author directly, not through DECUS.

Minimum Hardware:	8K PDP-11, TTY, Dual DECtape
Source Language:	PAL-11A

DECUS NO. 11-44

Electron Spin Resonance and General Integration Program

Paul E. McMahill, University of Oregon Medical School, Portland, Oregon

This program integrates electron spin resonance spectra, chromatographic peaks and other data. The corrected original data and the first and second integrals are plotted. The first and second integrals are quantitated. The data can be typed out if a plotter isn't used.

Minimum Hardware:	4K PDP-11, ASR33, Hewlett-Packard Model 7200A graphic plotter is optional
Other Programs Needed:	Abridged floating point package (included)
Storage Requirement:	3328 words including FPP and 1536 words for data
Restrictions:	The baselines must be adjustable from the end points
Source Language:	PAL-11A

DECUS NO. 11-45

DLINES

G. Bernstein, McGill University, Montreal, Canada

Allows user to display any stationary or moving figure on CRT by entering that figure's geometry from the teletype. Figures may be ordinary straight lined objects (squares, triangles, pentagons, etc.) or vector approximations to curvilinear figures.

Minimum Hardware:	8K PDP-11/20, RC11 Disk, VR14CRT; KW11-P (program clock) optional
Storage Requirement:	1275 words (program) 2067 words (buffer)
Source Language:	ASSEMBLER

DECUS NO. 11-46

Two Conversion Routines EBTASC and ASCTEB

Kenneth Schroeder, E. R. Squibb and Sons, Inc., New Brunswick, New Jersey

EBTASC is a routine to convert data from IBM EBCDIC format into PDP-11 ASCII format. It is written in relocatable code and must be reassembled with its calling program.

ASCTEB performs the inverse function of EBTASC. This routine must also be reassembled with its calling program.

As written these routines are written, reassembled and loaded together. They require 1617 Octal Bytes of storage. Their execution time depends on length of the data buffers.

Source Language:	PAL-11A

DECUS NO. 11-47

External Functions for PDP-11 BASIC

Dr. Rudolf Albrecht and Dr. Peter B. Boyce, Lowell Observatory, Flagstaff, Arizona

A system of 10 external functions for PDP-11 BASIC for driving paper tape reader(s) (reading data in ASCII format) , a VTØ1 storage scope, and the TC-11 DECtape. Deletion of not needed functions is possible.

Minimum Hardware:	8K PDP-11, TTY
Source Language:	PAL-11

DECUS NO. 11-48

TRACE Debugging Program

Victor Adomaitis, Computing Devices of Canada, Ltd., Ottawa, Ontario, Canada

This program allows linked object programs to be debugged. Using the ASR33, the user may:(a) examine or alter any core location (b) run all or any portion of the object program (c) dump the contents of all 8 general registers (d) dump any specified area of core. TRACE is compatible with the PDP-11 Disk Operating System (DOS) and may be used under it. The manual for this program assumes familiarity with the Disk Operating System Monitor.

Minimum Hardware:	4K PDP-11, ASR33, LP-11 (optional)
Storage Requirement:	760_{10} words
Source Language:	PAL-11R

DECUS NO. 11-49

HELP Bootstrap

Rick Wardrop, Digital Equipment Corporation, Sunnyvale, California

This program provides a quicker and more convenient method of loading the bootstrap and absolute loaders.

Minimum Hardware:	4K PDP-11
Storage Requirement:	0-420
Source Language:	Assembly

DECUS NO. 11-50

UNPAL-11

Patrick H. Stakem, Fairchild Industries, Germantown, Maryland

This program disassembles core-image code produced by PAL-11 and loaded by LINK-11 into Symbolic. Symbolic, with absolute addresses, is listed on the teletype.

Minimum Hardware:	8K PDP-11, TTY, EAE (Under DOS can be modified to be independent of EAE), DOS
Storage Requirement:	$< 5600_8$ bytes
Source Language:	PAL-11

DECUS NO. 11-51

PPMT and DUMPMT

Barry Kaplan and Stan Shell, EPSCO, Inc., Westwood, Massachusetts

PPMT stores ASCII source paper tapes onto the DATUM 9 track magtape. It is ideal for users without the features of a Disk Operating System. These files can then be dumped onto the teletype, high speed punch or line printer using DUMPMT.

DUMPMT dumps files from the magtape generated by PPMT onto the teletype, high speed paper tape punch, or 132 column line printer.

Minimum Hardware:	PDP-11/20, DATUM 9 track magtape, LOGOS 132 column line printer, ASR33, PC-11 high speed paper tape reader
Storage Requirement:	4K Minimum
Source Language:	PDP-11 Assembler (relocatable)

DECUS NO. 11-52

ODT-11XR

Barry Kaplan and Stan Shell, EPSCO, Inc., Westwood, Massachusetts

ODT-11XR is a relocatable version of ODR-11X for the PDP-11/20 paper tape system. Using the Absolute Loader, ODT-11XR can be loaded into memory at any location by specifying the desired bottom address in the switch register.

Minimum Hardware:	4K PDP-11/20, ASR33
Source Language:	PAL-11 Assembler Language

DECUS NO. 11-53

PDP-11/10 Loader

H. L. Farnsworth and R. B. Fleisher, Eastman Kodak Company, Rochester, New York

A program called (LOD11) written for the PDP-11 computer, and a program called (LOD11X), written for the PDP-10 computer, allows full duplex conversation between the PDP-10 monitor and the PDP-11 teletype. Furthermore, PDP-11 programs assembled on the PDP-10 may be loaded directly into PDP-11 core.

Minimum Hardware:	PDP-10, Disk; PDP-11/20, DC11AB - full duplex
Other Programs Needed:	Monitor Patch "DSLINT.MAC" (Included on tape)
Storage Requirement:	PDP-10 - 2K core; PDP-11 - 4K core
Miscellaneous:	This program also available as DECUS NO. 10-148
Source Language:	TECO

DECUS NO. 11-54

MAGTAPE LOADER

Barry Kaplan and Stan Shell, EPSCO, Inc., Westwood, Massachusetts

Transfers binary load modules from magtape to memory. Presently up to 15 standard binary modules may be loaded onto magtape and selectively loaded into memory using this program. This is much faster than loading directly from paper tape and, in addition, eliminates the handling of bulky paper tape modules.

Minimum Hardware:	PDP-11/20, DATUM 9 track magtape, ASR33, PC11 HSR
Other Programs Needed:	Absolute Loader
Storage Requirement:	4K minimum
Source Language:	PDP-11 Assembler Language

DECUS NO. 11-55

Modifications to ED-11 V004A

Kenneth LaBaw, Naval Weapons Center, China Lake, California

This modification, which can be loaded after ED-11 V004A, provides the following features:

Line Printer Output "W" (prefixes allowed as with "L"), Automatic retention of "N" if there is no line printer, Power Fail Routine, Memory Size Correction, ED-11 Restart at 0.

DECUS NO. 11-55 (Continued)

Minimum Hardware: TTY
Other Programs Needed: PDP-11 Text Editor, ED-11
Storage Requirement: No additional storage beyond ED-11

DECUS NO. 11-56

Computer Dating

David Corbishley, Wilmington, Delaware

A good game or demonstration for RSTS-11 users. The program employs all devices available to the user.

Minimum Hardware: RSTS-11
Restrictions: Can be run only on RSTS-11
Source Language: BASIC - PLUS

DECUS NO. 11-57

A General-Purpose External Function for PDP-11 BASIC

E. C. Oakley, (formerly of) Jet Propulsion Laboratory, Pasadena, California

This function can move data to and from any peripheral device located along the PDP-11 Unibus. It greatly simplifies input-output programming tasks, within BASIC's language environment. EXF can add much flexibility to ordinary computational BASIC programs not requiring peripheral control capabilities.

Minimum Hardware: PDP-11/20 (8K), ASR33
Other Programs Needed: PDP-11 BASIC, VØØ7A
Storage Requirement: 48 words (16-bit)
Source Language: PAL-11A

DECUS NO. 11-58

ODT-11T

Barry Kaplan and Stan Shell, EPSCO, Inc., Westwood, Massachusetts

ODT-11T is a relocatable version of ODT-11X (ref. DECUS NO. 11-52, ODT-11XR) with a program execution timer. A time command T has been added to allow execution timing of any selected portion of a program. Time is accurate to ± 10 μ sec.

Minimum Hardware: 4K PDP-11/20, ASR33
Storage Requirement: 4K minimum. ODT-11T requires 1200 words without the stack
Source Language: PDP-11 Assembly Language

DECUS NO. 11-59

UNPAL-11A Mnemonic Dump

Peter J. Moylan, University of Newcastle, Australia

This program dumps a selected section of PDP-11 core memory to the teletype. The dump is in mnemonic format, using PAL-11A instruction mnemonics.

Minimum Hardware: 8K PDP-11 with TTY
Storage Requirement: 2ØØØ to 22236 plus small stack at 37500
Source Language: PAL-11A

DECUS NO. 11-60

DSKBOT

Edward A. Gardner, Automated Health Systems, Wakefield, Massachusetts

Performs the function of the BM792-YB bulk storage bootstrap loader, with the addition of certain options for ease of use.

DSKBOT is supplied as a paper tape in bootstrap format. Source and binary tapes are also available, but these are not for DSKBOT itself, but rather a program which punches out the DSKBOT bootstrap tape. It determines which type of paper tape would be used by the loaders (from address XX7776) and punches on that device.

Minimum Hardware: 4K PDP-11, paper tape (low or high speed)
Source Language: PAL-11

DECUS NO. 11-61

BXMIT

Barry Kaplan and Stan Shell, EPSCO, Inc., Westwood, Massachusetts

BXMIT is a binary transmitter routine for the ASR33 teletype, PC11 high speed punch, LOGOS 132 column line printer, and DC11 interface unit (unit 1). The routine is used to transmit selected binary patterns to the various peripherals. It is primarily used for checking out the DC11 line interface.

Minimum Hardware: 4K PDP-11/20, PC11 high speed reader/punch
Source Language: PDP-11 Assembler Language

DECUS NO. 11-62

Procedure for Interfacing to FOCAL-11

Joseph F. Iaquinto, General Motors Engineering Staff, Warren, Michigan

This is a manual to aid the user in adding functions to FOCAL-11.

Minimum Hardware: 4K PDP-11
Other Programs Needed: FOCAL-11 (DEC-11-LFOCA-A-D)

DECUS NO. 11-63A.a

SYSGEN Procedure for SRL Magtape Operating System

James W. Brown, Space Radiation Lab., California Institute of Technology, Pasadena, California

This system is supplied as a set of paper tapes assembled for a 12K PDP-11. These may be loaded by the Paper Tape Loader into any PDP-11 having at least 12K words of read-write memory. If more memory is available it will not be able to access the system as supplied. Description for expanding the system to fit a larger machine is given in this document as well as the procedure for generating a 12K system.

The February 1, 1973 addendum to this write-up describes RELEASE 3 and briefly summarizes how it differs from the previous version.

Other Programs Needed: RELEASE 3 Software (DECUS NO. 11-63B.a through 11-63I.a

DECUS NO. 11-63B.a

IOXMTA - IOX Plus TU1Ø Magnetic Tape

James W. Brown, Space Radiation Lab., California Institute of Technology, Pasadena, California

IOXMTA is an extension of the DEC program IOX, which is an interrupt-controlled input/output processor which lends itself to device-independent I/O programming. In addition to the standard devices handled by IOX, IOXMTA provides extensive support for TM11/TU1Ø magnetic tape with up to eight tape drives. It also provides a few extended features for some of the standard devices. IOXMTA is compatible with SRLSYS monitor (DECUS NO. 11-63C.a)

The November 3, 1972 addendum to the write-up, and a new tape, add a new command, COREX, which is identical to the COREDUMP command, except that the record is written with an extended interrecord gap.

Minimum Hardware: PDP-11, ASR33, TM11 with one to eight TU1Ø's

Source Language PAL-11A

DECUS NO. 11-63C.a

SRLSYS - Magtape System Monitor for PDP-11

James W. Brown, Space Radiation Lab., California Institute of Technology, Pasadena, California

SRLSYS is a permanently-resident monitor for the PDP-11, which is heavily magnetic tape oriented. The monitor, IOXMTA, I/O buffers, and the Absolute Loader together occupy the top 4K words of memory. SRLSYS supports specially formatted magnetic tape libraries and provides a number of utility services which may be requested from the keyboard or by the user program.

The November 3, 1972 addendum to the write-up and a new tape correct the previously existing program and add several new features including new commands, new utility routines and I/O error recovery.

A listing for the bootstrap loader for SRLSYS formatted tapes is included.

Minimum Hardware: PDP-11, ASR33, TM11 with one to eight TU1Ø's

Other Programs Needed: IOXMTA (DECUS NO. 11-63B.a)

Restrictions: Magtape write error recovery does not work for the first record of a file

Miscellaneous: Not compatible with DEC DOS

Source Language: PAL-11A

DECUS NO. 11-63D.a

SRLPIP - A File Manipulation Utility for the PDP-11

James W. Brown, Space Radiation Lab., California Institute of Technology, Pasadena, California

SRLPIP is a general input/output driver for the PDP-11, used to transfer and reformat data files from one device to another, using IOXMTA to perform the I/O operations. Devices supported are the ASR-33 teletype and paper tape reader/punch, PC11 high speed paper tape reader/punch and TM11/TU1Ø magnetic tape. PDP-1Ø compatible format is supported for 9 track tape. The program is supplied for a 12K machine but may easily be patched for a different memory size.

Three addenda to the write-up and a new tape make several modifications and corrections to the previous version and add several new features.

Minimum Hardware: 8K PDP-11, ASR33, TM11, one to eight TU1Ø's, PC11 optional

Other Programs Needed: IOXMTA (DECUS NO. 11-63B.a)

Source Language: PAL-11A

Source Language: PAL-11A

DECUS NO. 11-63E.a

ED-11M - Magnetic Tape Text Editor

James W. Brown, Space Radiation Lab., California Institute of Technology, Pasadena, California

ED-11M is an extension of the DEC program ED-11. It provides for magnetic tape input and/or output in addition to the standard devices, and contains a few additional features as well. Either 7 or 9 track tape can be used. At least two TU1Ø's are recommended. The program is supplied for a 12K machine but can be easily patched for another memory size.

DECUS NO. 11-63E.a (Continued)

Minimum Hardware:	8K PDP-11, ASR33, TM11, one to eight TU10's, PC11 optional
Other Programs Needed:	IOXMTA (DECUS NO. 11-63B.a)
Restrictions:	Magtape write error recovery does not work for the first word of a file
Source Language:	PAL-11A

DECUS NO. 11-63F.a

PAL-11M - Magnetic Tape Absolute Assembler

James W. Brown, Space Radiation Lab., California Institute of Technology, Pasadena, California

PAL-11M is an extension of the DEC PAL-11A absolute assembler. It has the capability of assembling source code from magnetic tape, and can produce any or all of its outputs (binary, listing, symbol table) on magtape as well. Output may be loaded by SRLSYS or LOAD-11M.

Minimum Hardware:	12K PDP-11, ASR33, TM11, one to eight TU10's, PC11 optional
Other Programs Needed:	IOXMTA (DECUS NO. 11-63B.a)
Restrictions:	1257 (decimal) user symbols in 12K version; no line printer in IOXMTA
Source Language:	PAL-11A

DECUS NO. 11-63G.a

PAL-11MR - Magnetic Tape Relocatable Assembler

James W. Brown, Space Radiation Lab., California Institute of Technology, Pasadena, California

PAL-11MR is an extension of the DEC PAL-11S relocatable assembler. It has the capability of assembling source code from magnetic tape, and can produce any or all of its outputs (binary, listing, symbol table) on magtape as well. Output must be linked by LINK-11M.

Revisions to this program are indicated in the 11-63A.a write-up.

Minimum Hardware:	12K PDP-11, ASR33, TM11, one to eight TU10's, PC11 optional
Other Programs Needed:	IOXMTA (DECUS NO. 11-63B.a)
Restrictions:	945 (decimal) user symbols; no line printer in IOXMTA
Source Language:	PAL-11A

DECUS NO. 11-63H.a

LINK-11M

James W. Brown, Space Radiation Lab., California Institute of Technology, Pasadena, California

LINK-11M is an extension of the DEC program LINK-11S, which is used to relocate and link object modules produced by the PAL-11MR or PAL-11S relocatable assemblers. Input may be any mixture of paper tape and consecutive or non-consecutive magnetic tape files. Output may be paper tape or magnetic tape.

Revisions to this program are noted in the 11-63A.a write-up.

Minimum Hardware:	12K PDP-11, ASR33, TM11, one to eight TU10's, PC11 optional
Other Programs Needed:	IOXMTA (DECUS NO. 11-63B.a)
Restrictions:	Must be reassembled to change memory size
Source Language:	PAL-11A

DECUS NO. 11-63I.a

LOAD-11M - Magnetic Tape Absolute Loader

James W. Brown, Space Radiation Lab., California Institute of Technology, Rasadena, California

LOAD-11M reads formatted binary records from magnetic tape produced by PAL-11M or LINK-11M and loads data into memory in any locations not occupied by itself. The tape file desired is selected via the switch register. The function of LOAD-11M is similar to that of the absolute loader. It is position independent and must be relocated by the Absolute Loader.

Minimum Hardware:	PDP-11, ASR-33, TM11/TU10
Other Programs Needed:	DEC Paper Tape Absolute Loader
Restrictions:	Uses Tape Unit 1. Maximum record size is 560 octal
Source Language:	PAL-11A

DECUS NO. 11-63J.a

7 track magtape containing source code for all programs in the SRL-PDP-11 Magnetic Tape Operating System may be ordered under this number.

DECUS NO. 11-63K.a

9 track magtape containing source code for all programs in the SRL-PDP-11 Magnetic Tape Operating System (Release 2) may be ordered under this number.

DECUS NO. 11-64

DOS VERSION OF BASIC

Peter J. Moylan, Department of Electrical Engineering, University of Newcastle, Australia

Implements a superset of PDP-11 BASIC to run under DOS. Extensions to the language include plotting commands for visual display and incremental plotter.

Minimum Hardware:	Any DOS configuration with at least 12K of core, EAE
Other Programs Needed:	PDP-11 DOS Monitor. FORTRAN Library is highly desirable
Storage Requirement:	Uses all available core
Restrictions:	One user only
Source Language:	PAL-11R

DECUS NO. 11-65

EDUALO - RKØ78

N. C. S. Long, Hawker Siddeley Aviation, Ltd., Kingston-Upon-Thames, Surrey, England

This version of EDU70 Multi-user BASIC can be loaded under DOS and allows free core to be allocated to users in the ratio specified by the initial dialogue.

Minimum Hardware:	8K Paper Tape or 12K DOS System
Miscellaneous:	Currently this program uses EDU70 VØØ2A
Source Language:	PAL 11

DECUS NO. 11-66

PALDMP. KØ42

N. C. S. Long, Hawker Siddeley Aviation, Ltd., Kingston-Upon-Thames, Surrey, England

This program dumps the core memory in PAL11 mnemonic assembly language form. The program is relocatable and used as DEC's Teletype Octal Dump. The resulting output can be reassembled by the PAL11 assembler.

Minimum Hardware:	4K PDP-11, ASR33
Restrictions:	No non-existant memory protection
Source Language:	PAL11

DECUS NO. 11-67

EBCDIC TO ASCII MAGTAPE CONVERSION

Chuck Forsberg, TEKTRONIX (IDP) Inc., Beaverton, Oregon

Translates EBCDIC tapes (card image format) to ASCII. Provides for card deck label selection and suppression of deck labels and trailing spaces.

Minimum Hardware:	8K PDP-11 DOS 9-track TM-11
Associated Documents: (Not supplied by DECUS)	IBM 360 Reference Data Dard; Memorandum to Recipients of System/360 Scientific Subroutine Package
Restrictions:	Editing function not valid if line length is not 80 characters
Source Language:	PAL11R

DECUS NO. 11-68

ALGEBRA - A Program for Manipulating Logical Expressions

P. J. Brown and R. C. Saunders, University of Kent at Canterbury, Canterbury, Kent, England

ALGEBRA allows the user to declare a set of objects and then to define a number of operators that can be applied to these objects. The objects are called values. Once the operators and values have been defined the user can investigate their properties by evaluating expressions involving variables, operators and values.

Minimum Hardware:	PDP-11
Other Programs Needed:	DOS
Storage Requirement:	2.5 K words + data storage
Source Language:	PAL-11

DECUS NO. 11-69

ML/I Macro Processor

P. J. Brown; DOS11 Implementation by R. C. Saunders, University of Kent at Canterbury, Canterbury, Kent, England

ML/I is a general purpose macro processor. It can process any kind of text. It provides the user with a simple means of adding extra statements to an existing programming language to make the language more suitable for his own field of application. Other uses of ML/I are program parameterization, text editing or correction, and data format conversion.

Minimum Hardware:	PDP-11
Other Programs Needed:	DOS
Storage Requirement:	7.6 K words plus data storage
Source Language:	PAL-11

DECUS NO. 11-70

DOS BASIC (SIMPLE VERSION)

George Shering, CERN (European Organization for Nuclear Research), Geneva, Switzerland

This is a version of PDP-11 single-user BASIC, modified to run under the disk operating system. Programs can be SAVE'd, OLD'ed, or RUN from any DOS device. The full range of DOS CTRL/C commands can be used. EXF is not supported.

Minimum Hardware:	8K DOS configuration
Source Language:	PAL-11R

DECUS NO. 11-71

ACCEPT

J. Eric Pollock, University of Washington, Department of Oceanography, Seattle, Washington

ACCEPT is a FORTRAN callable free format input routine which provides a service similar to the FORTRAN ACCEPT statement. Free format input is scanned per call specifications to extract integer, real, or character string arguments separated by blanks or commas. Null arguments are treated as zeroes or skipped as specified.

This program was designed with FORLIB version 17 in mind. No guarantee is made that it will work with other versions of the FORTRAN object time system.

Minimum Hardware: Sufficient to support FORTRAN
Source Language: MACRO-11

DECUS NO. 11-72

"3D-TIC-TAC"

Wayne H. Tanaka, Naval Weapons Center, China Lake, California

A demonstration program to compare pattern recognition of a computer with that of a human. The program is a TIC-TAC-TOE game played on a 4X4X4 board. The game rules are contained in the program.

Minimum Hardware: PDP-11/20 with 4K memory and TTY
Restrictions: TTY Interrrupt disabled
Source Language: Binary

DECUS NO. 11-73

LP or CR PDP-11 DOS Drivers for Use With A. B. Dick Videojet Printer

R. M. Cunningham, University of Missouri, Columbia, Missouri

An A. B. Dick Videojet Line Printer (LP) driver has been written for the PDP-11 Disk Operating System (DOS). The DEC DOS Card Reader (CR) driver has been modified to make it compatible with the Videojet printer. The source tape for the LP driver can be conditionally assembled to provide a driver for a Videojet printer either with or without the form feed option. In addition conditional assemblage is available for systems either with or without a card reader. The CR driver source tape can also be conditionally assembled following DEC supplied instructions. After assembly and linking the load modules can then be easily incorporated into the monitor library.

Minimum Hardware: PDP-11 which will support DOS; A.B. Dick Videojet Printer
Other Programs Needed: DOS-11 (Paper Tape RF11 VØØ4A)
Source Language: PAL-11R

DECUS NO. 11-74

ODT-11, ODT-11X, Revised

Digital Equipment Corporation
Revised by: Ward P. Whitlock, Watkins-Johnson Company, Rockville, Maryland

These are DEC programs DEC-11-01PA and DEC-11-02PB which the submitter feels were bothersome under certain conditions, particularly in debugging new programs. Areas treated in this revision include: the stack, coding, breakpoint table handling, breakpoint handling and manual entry processing.

Minimum Hardware: PDP-11, TTY, High Speed Punch

DECUS NO. 11-75

LOADER

John R. Brassard, University of Texas Medical Branch, Galveston, Texas

LOADER is a modified version of the DEC Absolute Loader Program for use with the PDP-11 Disk Operating System (DOS). It can be used to load into core paper tape programs punched in aboslute binary format. This program can be run from the disk using the Monitor RUN command.

Minimum Hardware: PDP-11/20, DOS
Restrictions: Bottom addresses (when linked) must be in core limits
Source Language: PAL-11R

DECUS NO. 11-76

PDPAS - PDP-11 Assembler

Aloysius Chu
Submitted by: Thomas Lanzatella, University Computing Center, University of Minnesota, Minneapolis, Minnesota

PDPAS converts a PDP-11 assembly into PDP-11 absolute binary code and produces an octal symbolic listing with error messages after two passes. An optional cross reference table of user defined symbols can be obtained. PDPAS is written in FORTRAN IV with the exception of 3 non-standard functions and 2 non-standard data statements. The length of a computer word is assumed to be at least 16 bits long. The object codes generated are left in memory and can be written on a file in a form acceptable to the PDP-11 absolute loader (see page 5-9 of the DEC-11 GGPA-D manual).

Minimum Hardware: PDP-11, Card reader, mass storage
Source Language: FORTRAN IV

DECUS NO. 11-77

PERMUT - Permutes a Given Sequence of Numbers

Robert Maulsdale, University of Birmingham, Birmingham, United Kingdom

PERMUT reorders the N elements of a user supplied array, giving the next permutation in the sequence. It is designed to be called from an assembler program or a PDP-11 FORTRAN program.

Minimum Hardware: PDP-11/20
Source Language: PAL-11R

DECUS NO. 11-78

DFWFT - Discrete Fast Walsh-Fourier Transform Subroutine

Urs R. Wyss and Reto Bardola, Institut fuer Hirnforschung, University of Zurich, Zurich, Switzerland

DFWFT is a subroutine written for the PDP-11/20 for performing a forward or inverse Discrete Fast Walsh-Fourier Transform of N real data elements, where N is a power of 2 in the range $8 \leq N \leq 16384$. A sample size of 1024 elements is transformed in 357 msec (0.357 sec). 560 words of core storage is required for the control section (subroutine), and N words for the data section. The source module is written for the DOS-11 environment, minor changes are required for a paper tape system. DFWFT may be invoked as a FORTRAN subroutine.

Minimum Hardware: PDP-11/20, DOS-11 VØØ4A
Source Language: PAL-11R

DECUS NO. 11-79

PDP-11 Reverse Assembler

J. E. Bowdle, Goodyear Atomic Corporation, Piketon, Ohio

This program converts PDP-11 binary paper tapes (absolute or relocatable) to a form similar to the listing pass of the program written in PAL-11A which would have produced the binary tape. It does not use IOX. The user may potentially insert patches for other I/O devices.

Minimum Hardware: PDP-11, Optical tape reader, TTY with standard addresses
Other Programs Needed: Binary loader, V00CA
Restrictions: Output limited; does not have all op-codes for 11/45
Source Language: PAL-11A

DECUS NO. 11-80

PARITY - Paper Tape Compatibility with I.C.L.

Barry L. Seward-Thompson, Unit of Coastal Sedimentation, N.E.R.C., Taunton, Somerset, England

This program provides ASCII paper tape compatibility with ICL machines. It can either input ICL formatted paper tapes adding a CR to the LF at the end of each record, or output even parity ASCII deleting the CRs. It runs under DOS V004A, is device independent, and uses the CSI. The operator is asked whether CRs are required in the output file.

Minimum Hardware: 8K PDP-11/20, TTY; any DOS supported hardware is optional
Other Programs Needed: DOS Monitor
Source Language: PAL-11

DECUS NO. 11-81

MTFDEL - TU1Ø 7-track Magtape File Deleting Program

Barry L. Seward-Thompson, Unit of Coastal Sedimentation, N.E.R.C., Taunton, Somerset, England

This program was written to facilitate file deletion on 7 track TM11/TU10 magtape under DOS V004A. Under PIP, tapes can only be zeroed. In MTFDEL, a tape drive and filename is specified in CSI format and the file is overwritten by a Logical E-O-T which thus deletes the named file and all subsequent files on the tape.

Minimum Hardware: 8K PDP-11/20, TM11/TU1Ø 7-track Magtape Drive
Other Programs Needed: DOS Monitor
Source Language: PAL-11

DECUS NO. 11-82

RK11 Disk to Disk Duplicator

Larry D. Rice, NCCS-WORD, Inc., Beechwood, Ohio

Duplicates the entire contents of one RK11 disk pack onto another RK11 pack. Specifically, reads from drive 0 and writes onto drive 1.

Minimum Hardware: PDP-11/20, two RK11 disks, DECwriter, paper tape reader
Other Programs Needed: DOS 11
Source Langauge: MACRO 11 or PAL-11

DECUS NO. 11-83

KØ82.FILDMP with /PA(L11) Switch Option

N.C.S. Long, Hawker-Siddeley Aviation Ltd., Kingston-Upon-Thames, Thames, Surrey, England

This is a modified version of DEC's dumping utility FILDMP. An additional output switch has been provided which allows the translation of a binary file into an equivalent PAL 11 mnemonic listing.

DECUS NO. 11-83 (Continued)

Minimum Hardware: PDP-11 DOS system
Miscellaneous: Currently, version VØØ5A of FILDMP is used
Source Language: PAL-11

DECUS NO. 11-84

IOXCRT - Input Output Executive with CRT and Hard Copier

Stephen Gill, Ball Brothers Research Corporation, Boulder, Colorado

IOXCRT is an extension of DEC program IOX. It adds code to support the Tektronix 4010 CRT and 4610 Hard Copy unit as a teletype.

With this package the user can control certain CRT and Hard Copier functions from the keyboard. He also can command IOX to initiate a hard copy of the CRT automatically each time the screen fills. There are no special provisions for graph mode. However, the graph may be utilized through the unformatted binary mode.

Several other small changes have been made which are discussed under the section on non-related changes.

The reader should be familiar with the write-up covering IOX in the Papertape Handbook available from DEC.

Minimum Hardware: PDP-11, LSR or HSR, TTY or Tektronix 4010 CRT and 4610 Hard Copier
Restrictions: No .END directive in last tape
Source Language: PAL-11A

DECUS NO. 11-85

IOXEXT - Input Output Executive Extended

Stephen Gill, Ball Brothers Research Corporation, Boulder, Colorado

IOXEXT is an extension of DEC program IOX. It adds two devices to the present version of IOX supplied by DEC.

These devices are the Tektronix 4010 CRT with the 4610 CRT Hard Copier, and the TM11 magnetic tape controller with up to 8 tape units. There are no special provisions for the CRT graph mode. However, the graph may be utilized through the unformatted binary mode.

Several other small changes have been made which are discussed under the section on non-related changes.

The reader should be familiar with the write-up covering IOX in the Papertape Handbook available from DEC.

Minimum Hardware: PDP-11, HSR or LSR, TTY or Tektronix 4010 CRT and 4610 Hard Copier
Restrictions: No .END directive in last tape
Source Language: PAL-11A

DECUS NO. 11-86

EDDY - A Scope Oriented Editor for the PDP-11

G. Bernstein, McGill University, Montreal, Quebec, Canada

EDDY is a modification to the EDIT11 (Editor) program which will display portions of the Editor's ASCII buffer on a CRT. Only minor modifications were incorporated into EDIT11 so that all EDIT11 commands have been preserved, and all modifications are invisible to the user. EDDY may be used without the CRT with no obvious differences to the user. With the CRT connected, 70 characters are displayed on the screen, 10 preceding 'dot' and 60 following it. In addition, facilities are provided for a quick scan of the entire ASCII buffer.

Minimum Hardware: 8K PDP-11/20, DOS, VR14 Point Display, Scope Controller
Miscellaneous: EDIT11.OBJ (modified) and DISTXT.PAL also provided on DT should user wish to make modifications. Modification procedures can be obtained through personal communication with the author
Source Language: PAL-11R

DECUS NO. 11-87

CRTEXT

G. Bernstein, McGill University, Montreal, Quebec, Canada

This is a stand-alone module which allows the user to display alphanumeric messages on a point-plot CRT. Up to 9 lines of message can be displayed. The user communicates with CRTEXT via a suitable executive program, which simply involves pushing the address of his ASCII buffer onto the stock and making repeated jumps to CRTEXT to maintain the display.

Minimum Hardware: PDP-11/20, DOS-11, VR14 CRT, CRT Controller
Source Language: PAL-11R

DECUS NO. 11-88

COMPU/CORDER PDP-11 DOS Driver or "How to Make a Cassette Behave Like DECtape"

Jon Shapiro
Submitted by: Edward L. Pavia, Sykes Datatronics, Inc., Rochester, New York

This is a driver that causes a Sykes COMPU/CORDER 120 or 220 to behave exactly like DECtape. Each cassette will contain 578 blocks of 256 16-bit words exactly like DECtape. Each block of data is directly accessible at 120 inches per second. All DECtape requests from DOS, PIP, etc. are intercepted by the driver and executed on the cassette. By emulating DECtape, files may be generated, assembled, edited, etc. on a cassette in exactly the same manner as they would be on DECtape. Bench mark tests show similar speeds between DECtape and the cassette. A ZERO program

DECUS NO. 11-88 (Continued)

(DECUS NO. 11-89) is used to initialize the cassette (write bit maps and change interleave factor from 4 to 1).

Minimum Hardware:	PDP-11 DOS System
Other Programs Needed:	ZERO program (DECUS NO. 11-89)
Source Language:	PAL-11

DECUS NO. 11-89

ZERO

Sykes Datatronics, Inc.
Submitted by: Edward L. Pavia, Sykes Datatronics, Inc., Rochester, New York

This is a short routine used to initialize cassettes similar to the way DECtape is initialized when using the /Z switch in PIP. Bit maps are written and the interleave factor is changed from 4 to 1. Cassettes that are initialized can then be used with the COMPU/CORDER DOS Driver (DECUS NO. 11-88) to emulate DECtape.

Minimum Hardware:	PDP-11 DOS System
Other Programs Needed:	COMPU/CORDER Handler (DECUS NO. 11-88)
Source Language:	PAL-11

DECUS NO. 11-90

Listing Program for a PDP-11 Computer

R. P. Loretan, University of Essex, Colchester, Essex, England

This program paginates PAL-11 Source tapes in A4 format. A page header is introduced which is accepted by the assembler as a comment. "Formfeed" in the source effects the start of a new page. This is not corrupted by subsequent editing, as the pages are regenerated by the program in every run (blank lines after a "Formfeed" are ignored).

Minimum Hardware:	PDP-11, HSR/P
Other Programs Needed:	IOX
Source Language:	PAL-11

DECUS NO. 11-91

BLDP11 Block Display Program

Rudolf E. Kubli, Institut fur Biomedizinische Technik, Der Universitat und der ETH Zurich, Zurich, Switzerland

BLDP11 allows the user to display randomly selectable 256 word data blocks (1 word integers) of contiguous files by keyboard commands. Features: 1 input file (automatic linear X-scale) or 2 input files, maximum 4 blocks (next to each other or superposed) + 50 ASCII characters comment, automatic and manual scalings.

Minimum Hardware:	PDP-11 DOS basic configuration with 256 words disk block size or DECtape, VR20 or VR14 point plot display
Restrictions:	Program operation tested under DOS MONITOR V04 only
Source Language:	PAL-11R

DECUS NO. 11-92

SAPLOD - Stand-Alone Program Loader for DOS

William Little IV, Digital Equipment Corporation, Houston, Texas

SAPLOD allows DOS-11 users to load stand-alone programs such as Paper Tape Software Programs, MAINDEC diagnostics and user written routines which have been stored as normal DOS files on disks, DECtape and magtape.

Minimum Hardware:	PDP-11 DOS Hardware System
Other Programs Needed:	DOS-11, MACRO-11
Source Language:	MACRO-11

DECUS NO. 11-93A

ADC

Morris Frimer, University of Washington, Seattle, Washington

ADC is a multiple entry subroutine designed to interface a user's high level language program with the A/D converter for high data rates. This subroutine returns immediate control to the user while it drives the converter and stores the data on a mass storage device and keeps the user informed on status of process. The user may specify order of channels to be digitized simultaneously, gain to be used on each channel, and name for output contiguous file if desired.

Minimum Hardware:	Hardware necessary to support DOS, KW11-P Programmable Clock, AD01 Converter, KE11-A Extended Arithmetic Unit
Other Programs Needed:	Subroutine NPACK (DECUS NO. 11-93C - same tape)
Miscellaneous:	Tape includes versions for 11/45 and 11/20
Source Language:	MACRO-11

DECUS NO. 11-93B

SCORE

Morris Frimer, University of Washington, Seattle, Washington

SCORE is a multiple entry subroutine to provide the higher level language user with means to directly extract any segment of any length from a contiguous file without regard to any logical or physical boundaries. File parameters describing the logical organization of the data are: number of groups (number of blocks (number of records (length of record))). Data is extracted starting at a work number (record number (group)) though the number of words requested for the same record number. This is compatible with the architecture of files created by subroutine ADC.

DECUS NO. 11-93B (Continued)

Minimum Hardware:	Minimum configuration required to support DOS
Other Programs Needed:	NPACK (DECUS NO. 11-93C - same tape)
Restrictions:	Full blocks of 256 words each
Miscellaneous:	Tape includes version for 11/45 and 11/20
Source Language:	MACRO-11

DECUS NO. 11-93C

NPACK

Morris Frimer, University of Washington, Seattle, Washington

NPACK is a FORTRAN callable subroutine to RAD50 code an ASCII string that adheres to standard DOS file naming conventions.

Minimum Hardware:	Minimum configuration to support DOS 11
Miscellaneous:	Compatible for both 11/20 and 11/45
Source Language:	MACRO-11

DECUS NO. 11-94

Transformed Z Scores

William Wilmot and Wesley Shellen, University of Montana, Missoula, Montana

This program can be used to calculate transformed Z scores on student grades and other data. The Z scores have a mean of 50, standard deviation of 2103 and range of 1-99. In addition an output option allows for frequency counts and cumulative percentages of raw scores.

Minimum Hardware:	8K PDP-11
Source Language:	FOCAL-11

DECUS NO. 11-95

Real-Time Overlay for 1-8 User BASIC-11 (VØØ2A)

James E. Davis and L. B. Rogers, Chemistry Dept., Purdue University, West Lafayette, Indiana

The source program and additional descriptive material show how to add real-time I/O patches to BASIC without recompiling in a paper tape based environment. Although BASIC, together with the I/O patch, fits into 8K of core a more realistic minimum is 12K. One-user operation is approximately five times faster than BASIC written for a single user having 4K of core. With 16K, two-user BASIC has been employed successfully for rather lengthy periods.

Minimum Hardware:	8K PDP-11, Real-time and line clocks, DECtape, EAE, D/A converter, DR-11A scope (TEK-611)
Restrictions:	Overlay should be tailored to user's peripherals. Multi-user priority on peripherals not resolved
Source Language:	PAL-11

DECUS NO. 11-96

*1 (STAR-ONE)

Richard A. Stone, Western Electric, Engineering Research Center, Princeton, New Jersey

*n is a highly efficient list processing language which will run on a variety of small and large computers. It can be interfaced with standard programming languages to add smaller, faster list processing subroutines to a program.

*n is a version of *1 (descendent of L6)

Minimum Hardware:	PDP-11 or PDP-10 or 5/360/370
Other Programs Needed:	Needs SITBOL to recompile
Storage Requirement:	15 + 10K
Restrictions:	Partially restricted subset of *1
Miscellaneous:	This program is also offered as DECUS NO. 10-193
Source Language:	SNOBOL 4

DECUS NO. 11-97

PROCON-11

Paul R. Condit, Automatic Production Systems, Pennsauken, New Jersey

PROCON-11 is a set of debugging aids designed to assist the programmer in the maintenance and alteration of existing programs and to facilitate the preparation of new ones. In addition to commonly used debugging routines such as core dumps, PROCON-11 also includes a selected group of self-contained device handlers, which are often useful in the debugging of more complex handlers.

Minimum Hardware:	4K PDP-11/20 or equivalent
Miscellaneous:	Source tape is available, on request, directly from the author
Source Language:	PAL-11R

DECUS NO. 11-98

MASK

Bernt Hogkvist
Submitted by: Tomas Lofgren, Digital Equipment Corporation, Stockholm, Sweden

This subroutine package for use in FORTRAN programs provides the user with a simple means of working on bit level which is generally available only in MACRO programs. The functions included are: AND, OR, XOR, Rotate, Bit set, Bit clear and Bit test.

Minimum Hardware:	DOS-11
Source Language:	MACRO-11

DECUS NO. 11-99

KTDVR - Keyboard Terminal Driver for DOS V^4 and V^8

Thomas R. Reed, University of Western Australia, Nedlands, W. A.

KTDVR.MAC is a MACRO source module for keyboard drivers which can be conditionally assembled to provide drivers for either the command device "KB" or additional keyboard terminals. The driver can provide standard DOS character handling or can be conditionally assembled to allow VT05 cursor and display control including direct cursor addressing. When assembled for VT05B the driver will insert the proper padding for high Baud rate operation. Drivers can be generated for either V4 or V8DOS.

Minimum Hardware:	PDP-11/20, 11/10 or 11/15, Disk, Paper Tape Reader and Punch
Other Programs Needed:	EDIT11, MACRO11 or PAL11R and LINK11
Restrictions:	Not suitable for Serial LA-30 at 300 Baud
Source Language:	MACRO

DECUS NO. 11-100

LP.PAL, SP.PAL; TTY Drivers for Printer, Punch and Reader of V4 Monitor

Thomas R. Vanderpool, University of Wisconsin, Madison, Wisconsin

Two programs written for use with the PDP-11 V004A DOS Monitor. SP.PAL replaces the MT Magtape driver on disk with a driver for the slow punch and reader of an additional TTY. LP.PAL replaces the CR Card Reader driver on disk with a driver for the TTY Line Printer.

Minimum Hardware:	PDP-11, Additional TTY other than console
Other Programs Needed:	VØØ4A DOS
Source Language:	PAL-11R

DECUS NO. 11-101

Conway's "Life", PAL-11S Version

H. J. Morrison, Naval Underwater Systems Center, New London, Connecticut

An assembly level digital computer program for Conway's "Life." A Digital Equipment Corporation PDP-11 minicomputer, with at least 4,000 words of core memory and a teletype is required. A VR-14 display unit, a high speed paper tape reader and a DECtape recorder can be used. Simple commands are input via the teletype to control the operation of the program.

Program will start automatically if loaded with Absolute Loader.

Source Language:	PAL-11S

DECUS NO. 11-102

FBTRAN - Formatted Binary Transfer

James H. Stein, Security General, Santa Clara, California

FBTRAN supports formatted binary transfers from the low speed paper tape reader (teletype). This is a function not provided by PIP. Absolute tapes can be read into a disk or DECtape file, which can then be used as input to SAPLOD (DECUS NO. 11-92). For convenience SAPLOD files are included on the FBTRAN tape.

Minimum Hardware:	Minimum DOS configuration
Other Programs Needed:	DOS-11
Source Language:	MACRO-11

DECUS NO. 11-103

STRESS, A Finite Element Computer Program for Two-Dimensional Stress Analysis of Elastic Solids

Howard D. Curtis, Embry-Riddle Aeronautical University, Daytona Beach, Florida

The finite element displacement method of two-dimensional stress analysis of elastic solids using the constant-strain triangular element.

Minimum Hardware:	PDP-11/20, DOS Version 8-02, CR 11, RC 11, TC11/TU56 (one each), ASR33
Other Programs Needed:	FORLIB
Storage Requirement:	12K
Restrictions:	Attempts to run in less than 12K, without modifications, will not be successful
Source Language:	PDP-11, FORTRAN IV

DECUS NO. 11-104

HEAT, A Finite Element Computer Program for Two-Dimensional Steady-State Conduction Heat Transfer Analysis

Howard D. Curtis, Embry-Riddle Aeronautical University, Daytona Beach, Florida

The finite element method of two-dimensional steady-state conduction heat transfer analysis using the linear-temperature triangular element.

Minimum Hardware:	PDP-11/20, CR11, RC11, TC11/-TU56 (one each), ASR33
Other Programs Needed:	DOS Version 8-02; FORLIB
Storage Requirement:	12K
Restrictions:	Attempts to run in less than 12K, without modification, will not be successful
Source Language:	PDP-11 FORTRAN IV

DECUS NO. 11-105

POLFIT, A FOCAL Program to Fit Data to Polynomials up to 6th Degree

Larry V. East, Los Alamos Scientific Laboratory, Los Alamos, New Mexico

A FOCAL program that makes a least-squares polynomial fit to data supplied by the user. The program uses doubly subscripted variables, and is intended for use with the PDP-11 version of FOCAL.

Minimum Hardware:	8K PDP-11, TTY; Line Printer if available
Other Programs Needed:	FOCAL-11
Source Language:	FOCAL

DECUS NO. 11-106

Assorted Routines for use with DOS-11

Glenn Everhart, MIT, Cambridge, Massachusetts and Craig Everhart, Wesleyan University

Documentation and Source files for the routines listed below are available on one DECtape. The write-up available from DECUS describes the groupings on the tape and explains them more fully than the brief abstracts listed here.

1. Subroutines for plotting lines, graphing, and writing alphanumeric text on the VTØ1 storage display, from the NAL Bison package, with modifications for PDP-11/45 use, are provided, with FORTRAN-Callable interfaces.

2. Two games, DOTS and SPACEWAR, both written in FORTRAN IV, are provided. In SPACEWAR, two humans play, using the VTØ1 in non-store mode as a display of the positions of their rockets with respect to the sun, each other, and all torpedoes on the board. In DOTS, a human plays against the computer. The VTØ1 is used in store mode, and plotting and text routines in package 1 are illustrated. Advantages and limitations of the machine's heuristic strategy, and of prediction of results in certain situations, are shown.

3. A set of functions and subroutines is provided which can be inserted in a system FORTRAN library, giving FORTRAN the capability of performing all Boolean logic operations of one or two variables directly on integers, of finding addresses of arguments, of word shifts and rotations, and of finding the contents of any part of memory. In addition, a pair of routine packages, one DOS-oriented, the other stand-alone, but both FORTRAN-callable is provided to allow direct access to magnetic tape, outside the usual DOS-11 file label and record length conventions. (This is handy for talking to other kinds of computers.)

4. A VTØ1-using editor is supplied. It is a modified EDIT-11 VØØ6A in which all commands are preserved, but which displays 1Ø characters before dot to 6Ø after dot on the VTØ1 storage display, when the switches on the console are not all zero. When they are all zero, slow stepping of the display through the entire text buffer, 6Ø characters at a time starting at dot, is provided. Normal operation resumes when 1 or more switches are raised.

5. A set of FORTRAN-callable functions to provide scatter plots, line graphs, or generalized graphs on the Versatec (11" wide) printer-plotter is provided. These drive the plotter in stand-alone, non-interrupt mode to activate any nib in the write head under control of the calling routines.

DECUS NO. 11-107

"The Hockey Game"

Rick Siraco and Glenn Martinsen, Digital Equipment Corporation, Westminster, Massachusetts

A player versus computer game of hockey which closely simulates the real thing. Includes faceoffs, deflected pucks, kick saves, pucks tied up against boards, etc. Games are close and exciting.

Minimum Hardware:	PDP-11, 8K of available memory, TTY (LA30 or similar)
Source Language:	BASIC

DECUS NO. 11-108

TTYALL, Multi-Teletype Dispatcher

James Stanfill, Department of Medicine, University of Washington, Seattle, Washington

This is a multi-teletype dispatcher designed to utilize the Control-X function of the RSX-11D Operating System for the PDP-11-40/45 Computer. It is not designed to be another MCR. Its intent, rather, is to allow a user (e.g., a nurse or technician) who is not familiar with RSX-11D to run previously developed programs at a remote terminal. The dispatcher task executes at a priority just under the MCR, and will service any remote terminal for which a specific task (also described) is installed in the task list.

Minimum Hardware:	PDP-11/45 (or 40), 1 to 15 remote TTY-like terminals, sufficient core to support the multi-user capability of RSX-11D
Storage Requirement:	1424 words
Monitor/Operating System:	RSX-11D
Source Language:	MACRO-11

DECUS NO. 11-109

IOS - PDP-11/45 Formatted Input/Output Task Stacker and Processor

John Koschik, Randall Laboratory, University of Michigan, Ann Arbor, Michigan

IOS allows the programmer to perform formatted input/output at assembly language level to/from any peripheral device. It runs under DOS version V08-08, reading and writing DOS compatible files. Optionally IOS will run, with total transparency, in an environment with memory management enabled.

DECUS NO. 11-109 (Continued)

Minimum Hardware: 12K PDP-11/45, Keyboard Device, Disk (DK, DF or DC), Line Frequency Clock
Other Programs Needed: (Modified) SYSMAC.SML file
Storage Requirement: 3K (with Floating Point Processor)
Source Language: MACRO-11

DECUS NO. 11-110 (Previously 11/45-1)

Utility Routines for a PDP-11/45 With a Floating Point Processor

Kenneth B. Wiberg, Department of Chemistry, Yale University, New Haven, Connecticut

This is a set of routines for input/output, square root, trigonometric and exponential functions which are designed for convenient interfacing with assembly language main programs. The floating point routines use AC0 to transmit the argument and operate in the precision of the calling program (i.e. single or double). The input/output routines are designed for flexibility. Thus, the floating point input routine accepts both F and E format input and takes any non-numerical character other than +, -, . or E as a terminator. The F format output routine gives an E format output if the number is too large for the field specification.

The I/O routines are monitor independent in order to provide maximum flexibility and eliminate the need to set up link-blocks, file-blocks, etc. If desired, they could easily be interfaced into the DOS monitor.

Unlike most math routines, the ones given here use straightforward application of power series so that the user may control the precision. Timing and precision data are given as a function of the number of terms used.

Minimum Hardware: PDP-11/45 with FPU
Source Language: MACRO-11

DECUS NO. 11-111 (Previously 11/45-2)

"LEM" (Simulation of a Lunar Landing)

Leigh Clayton, Acadia University, Hantsport, Nova Scotia, Canada

The LEM program is a simulation of the landing of the Lunar Excursion Module on the moon. The program gives constantly updated numerical displays of all relevant data on the VTØ5 screen, while allowing the user to change main thrust and attitude, as well as certain control functions, by striking keys on the VTØ5 keyboard. The program requires VTØ5, KL11-L (Line Frequency Clock) with 60 Hertz supply, and a basic PDP-11/45 with the floating-point option. It is assembled, linked and loaded under the DOS-11 system, version 6A or later, and requires the MACRO-11 assembler.

Source Language: MACRO-11

DECUS NO. 11-112 (Previously 11/45-3)

Fast, Accurate Matrix Equation Solver and Matrix Inverter

G. Everhard, Massachusetts Institute of Technology, Cambridge, Massachusetts

Solves the matrix equation AX=B where A is an N by N matrix and B and X are N by M matrices. Matrix inversion is a special case of this equation.

Minimum Hardware: PDP-11/45 with F.P.P.
Other Programs Needed: DOS-11
Restrictions: Uses floating-point and extended instruction set operations, though the simple version DOS BASIC contains code that probably can enable any PDP-11 to carry out the same operation, albeit more slowly
Source Language: MACRO-11, PAL-11

DECUS NO. 11-113 (Previously 11/45-4)

READ - FORTRAN Compatible Free Format Input Routines

Kenneth B. Wiberg, Yale University, New Haven, Connecticut

PDP-11 FORTRAN currently does not have provision for free format integer and floating point data input. These routines (IREAD and FREAD) provide such a facility. With both routines leading spaces are ignored, and any illegal character in the context of the number is taken as a terminator. The usual terminators are a space or a carriage return.

Minimum Hardware: PDP-11/45, Floating Point Processor
Other Programs Needed: DOS-11, FORTRAN
Source Language: MACRO-11

DECUS SERVICE CHARGES

DECUS NO.	WRITE-UP	PAPER TAPE		LISTING	DECTAPE		LINCTAPE		MAGTAPE		OTHER INFORMATION
		BIN	ASCII		U/S	D/S	U/S	D/S	U/S	D/S	
11-1	NC	$	$ 5.	$ NC	$	$	$	$	$	$	
11-2	NC		5.	NC							
11-3	NC	1.		NC							
11-4	NC	1.	5.	NA							
11-5	NC		5.	NC							
11-8	NC			NC							
11-9	NC		5.	NC							
11-10	NA		5.	NA							
11-11	NC			NA	5.	17.					On 1 DECtape
11-12	NC		5.	NA							
11-13	NC	1.	5.	NA							
11-14	NC	1.	5.	NC							
11-15	NC	1.	5.	5.							
11-16a	NC	1.	5.	5.							
11-17	NC	1.	5.	NC							
11-19	NC	1.		NC							
11-20	NC	1.	5.	NA							
11-21	NC			NA	5.	17.					On 1 DECtape
11-22	NC			NA	5.	17.					On 1 DECtape
11-23	NC			NA	5.	17.					On 1 DECtape
11-25	NC			NA	5.	17.					On 1 DECtape
11-26	NC	1.	5.	5.							
11-27	NC	1.	5.	NA							
11-28	NC	1.	5.	NA							
11-29	NC	1.	5.	NA							
11-30	NC			NA	5.	17.					On 1 DECtape
11-31	NC	1.	5.	5.							
11-32	NC			NA	5.	17.					On 1 DECtape

N/C - No Charge
N/A - Not Available

U/S - User Supplied Tape (Certified)
D/S - DECUS Supplied Tape

For information not contained on this sheet see General Information

February 1974

DEC 7-(369)1112A-R1172

DECUS SERVICE CHARGES

DECUS NO.	WRITE-UP	PAPER TAPE		LISTING	DECTAPE		LINCTAPE		MAGTAPE		OTHER INFORMATION
		BIN	ASCII		U/S	D/S	U/S	D/S	U/S	D/S	
11-33	NC	$	$	$ NA	$ 5.	$ 17.	$	$	$	$	On 1 DECtape
11-34	NC	1.		NA							
11-35	NC	1.		NA							
11-36	NC		5.	NC							
11-37	NC		5.	NC							
11-38	NC	1.		5.							
11-39	NC	1.	5.	5.							
11-40	NC	1.	5.	NA							
11-41	NC		5.	NC							
11-42	NC	1.		NA							
11-43a	NC			NA							
11-44	NC	1.	5.	5.							
11-45	NC			NA	5.	17.					On 1 DECtape
11-46	NC	1.	5.	NA							
11-47	NC		5.	5.							
11-48	NC		5.	NA							
11-49	NC	1.		NC							
11-50	NC	1.		5.							
11-51	NC	1.	5.	5.							
11-52	NC	1.	5.	NA							
11-53	NC			NC	5.	17.					On 1 DECtape
11-54	NC	1.	5.	NC							
11-55	NC	1.	5.	NC							
11-56	NC		5.	NC							
11-57	NC			NC							
11-58	NC	1.	5.	5.							
11-59	NC	1.	5.	NC							
11-60	NC	1.	5.	NC							
11-61	NC	1.	5.	NC							

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DECUS SERVICE CHARGES

DECUS NO.	WRITE-UP	PAPER TAPE BIN	PAPER TAPE ASCII	LISTING	DECTAPE U/S	DECTAPE D/S	LINCTAPE U/S	LINCTAPE D/S	MAGTAPE U/S	MAGTAPE D/S	OTHER INFORMATION
11-62	NC	$	$	$ NA	$	$	$	$	$	$	
11-63A.a	NC			NA							
11-63B.a	NC	1.		NA							
11-63C.a	NC	1.		NA							
11-63D.a	NC	1.		NA							
11-63E.a	NC	1.		NA							
11-63F.a	NC	1.		NA							
11-63G.a	NC	1.		NA							Same Write-up
11-63H.a	NC	1.		NA							
11-63I.a	NC	1.		NC							
11-63J.a	NA			NA					20.	45.	On 1 Magtape (9-track)
11-63K.a	NA			NA					20.	45.	On 1 Magtape (9-track)
11-64	NC	5.		NA							
11-65	NC	1.	5.	NA							
11-66	NC	1.	5.	NA							
11-67	NC		5.	5.							
11-68	NC			NA	5.	17.					On 1 DECtape
11-69	NC			NA	5.	17.					With 11-68
11-70	NC			NA	5.	17.					On 1 DECtape
11-71	NC			NA	5.	17.					On 1 DECtape
11-72	NC	1.	5.	NA							
11-73	NC		5.	NC							
11-74	NC	1.	5.	5.							
11-75	NC	1.	5.	NC							
11-76	NC			5.							$20 - Card Deck
11-77	NC		5.	NC							
11-78	NC			NC	5.	17.					On one DECtape (obj,src)
11-79	NC	1.	5.	5.							
11-80	NC	1.	5.	NC							

N/C - No Charge
N/A - Not Available

U/S - User Supplied Tape (Certified)
D/S - DECUS Supplied Tape

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DECUS SERVICE CHARGES

DECUS NO.	WRITE-UP	PAPER TAPE		LISTING	DECTAPE		LINCTAPE		MAGTAPE		OTHER INFORMATION
		BIN	ASCII		U/S	D/S	U/S	D/S	U/S	D/S	
11-81	NC	$1.	$5.	$ NC	$	$	$	$	$	$	
11-82	NC	1.		NC							
11-83	NC	1.	5.	NC							
11-84	NC		5.	NA							
11-85	NC		5.	NA							
11-86	NC			NA	5.	17.					B/S DECtape with 11-87
11-87	NC			NA	5.	17.					DECtape with 11-86
11-88	NC		5.	NC							
11-89	NC		5.	NC							
11-90	NC	1.	5.	NC							
11-91	NC			NA	5.	17.					One B/S Dectape
11-92	NC			NC							$20 - Card Deck
11-93A	NC			NA	5.	17.					On one DECtape
11-93B	NC			NA	5.	17.					
11-93C	NC			NA	5.	17.					
11-94	NC		5.	NC							
11-95	NC			5.	5.	17.					One DECtape (src)
11-96	NC			NA	5.	17.					On One DECtape (obj, src)
11-97	NC	1.		NA							
11-98	NC		5.	NC							
11-99	NC		5.	NA							
11-100	NC		5.	NA							
11-101	NC	1.	5.	NC							
11-102	NC			NC	5.	17.					One DECtape
11-103	NC			NC	5.	17.					One DECtape
11-104	NC			NC	5.	17.					One DECtape
11-105	NC		5.	NA							
11-106	NC			NA	5.	17.					One DECtape (src)
11-107	NC		5.	NA							

N/C - No Charge
N/A - Not Available

U/S - User Supplied Tape (Certified)
D/S - DECUS Supplied Tape

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DECUS SERVICE CHARGES

DECUS NO.	WRITE-UP	PAPER TAPE		LISTING	DECTAPE		LINCTAPE		MAGTAPE		OTHER INFORMATION
		BIN	ASCII		U/S	D/S	U/S	D/S	U/S	D/S	
11-108	NC	$	$	$ NA	$ 5.	$ 17.	$	$	$	$	One DECtape (obj,src)
11-109	NC			NA							
11-110	NC			5.	5.	17.					Was 11/45-1; 1 DTA(obj,src
11-111	NC			5.	5.	17.					Was 11/45-2; 1 DTA(obj,src
11-112	NC			NC	5.	17.					Was 11/45-3; 1 DTA(obj,src
11-113	NC		5.	NC							Was 11/45-4

N/C - No Charge
N/A - Not Available

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For information not contained on this sheet see General Information

RSTS NUMERICAL INDEX

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RSTS11-2	UTILITIES, EDITORS AND HANGMAN GAME
RSTS11-3	TEXT EDITOR FOR RSTS
RSTS11-4	Withdrawn
RSTS11-5	CREATE AND CREAT1
RSTS11-6	RESEQ - Program Resequencing
RSTS11-7	Accounting Package
RSTS11-8	System Status Display - Hazeltine 2000
RSTS11-9	Project DELTA Educational Package, Section A, Mathematics Programs
RSTS11-10	Project DELTA Educational Package, Section B, Statistics Programs
RSTS11-11	Project DELTA Educational Package, Section C, Business Programs
RSTS11-12	Project DELTA Educational Package, Section D, Electronics and Production Oriented Programs
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RSTS11-21	ROBOT and FIX
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RSTS11-29	EDIT
RSTS11-30	COSAP, Conversationally Oriented Statistical Analysis Package

RSTS11-1a

EDITOR.BAS (and EDITIN), Version 6A

Walter E. Brown and Mark Williamson, Lawrence University, Appleton, Wisconsin

EDITOR can be used for resequencing, deleting, extracting, listing (in paged format) and performing other useful editing chores on BASIC-PLUS programs. It was written for use in conversational mode via 64-character ASCII terminals.

Operating System: RSTS V4A-12

RSTS11-2

UTILITIES, EDITORS, AND HANGMAN GAME

Clark Baker, DSAA: Project DELTA, University of Delaware, Newark, Delaware

EDIT8 will edit BASIC-PLUS programs. It is a character editor which will locate a character, delete characters, change characters, etc. It works only on files with line numbers.

EDIT will edit text files (BASIC-PLUS programs) and do two things: 1) locate any given string, and 2) replace one string with another.

PIP is like DEC's PIP but has different options. Some of these include /M -- MACRO and /X -- transfer.

FANNY will punch nice fanfold paper tapes on a low speed tape punch. It will punch the name of the program in readable punch at the start of the tape.

HANG will play a game of hangman on a VTØ6.

Operating System: RSTS V4A-12
Storage Requirement: 4K

RSTS11-3

TEXT EDITOR FOR RSTS

William H. Blake, Purdue University, West Lafayette, Indiana

Provides text editing for RSTS. Commands are LIST, INSERT, DELETE, SEARCH, REPLACE, CHANGE, and END. Alternate files may be specified for LIST, SEARCH, INSERT and CHANGE. Variable length lines are allowed up to a maximum of 256 characters. The editor has a maximum capacity of 246,000 characters.

Operating System: RSTS V4A-12
Other Software Required: RECORD I-O Option
Storage Requiremen: 8K

RSTS11-4

DEPRESS (Withdrawn)

Users who wish copies or information may contact Teresa Green, DSAA: Project DELTA, 248 DuPont Hall, University of Delaware, Newark, Delaware 19711

RSTS11-5

CREATE and CREAT1

Clark Baker, DSAA: Project DELTA, University of Delaware, Newark, Delaware

CREATE makes a virtual matrix called $PUNCH.MAT which contains enough information to produce the 96 printing characters in 5X7 block letters on punch tape, lineprinter, or teletype. CREATE only creates the file, the user must write the programs or use FANNY or CREAT1 (See RSTS11-2)

Providing readable punched paper tapes, CREAT1 is capable of three possible formats; sentence structured, (capitalized first word and period) fully capitalized string, or all lowercase alphabet. CREAT1 will operate with any legal alphanumeric and space. It will not output control characters, and requires CREAT1.INS for instructions, and PUNCH.MAT (created by CREATE) as the data base.

Operating System: RSTS V4A-12
Storage Requirement: 4K

RSTS11-6

RESEQ - Program Resequencing

Clark Baker, DSAA: Project DELTA, University of Delaware, Newark, Delaware

RESEQ will correctly resequence any BASIC program. It will take care of GO TO, GO SUB, ON GOTO, ON GOSUB, RESUME, ONERRORGOTO, etc. You decide the beginning line number and the increment. It is only a two pass resequence, which saves time.

Operating System: RSTS V4A-12
Storage Requirement: 5K

RSTS11-7

Accounting Package

Bentley College, Waltham, Massachusetts

This package is a set of 12 accounting programs designed to illustrate college accounting texts and perform useful calculations. Output format is formal on major subjects. Texts used include:

Intermediate Accounting by Simons, Cost Accounting by Matz/Curry and Accounting with the Computer by Wilkenson. Programs included are:

RSTS11-7 (Continued)

BDAMRT	bond amortization
BYFIELD	bond yield
BDVAL	mathematical valuation of bonds
DEPRE	six methods of depreciation
OVHVR	overhead standard variances
PRIMEV	material and labor variances
PENFUN	pension fund analysis
LEASE	lease purchase method of leaseholds
CASE1 (includes 6 files)	dynamic accounting simulation with student interaction
MXFIB	finds max. of user-defined function over an interval
MXTRI	similar to MXFIV, trisection method
ROOTS	finds roots of user-supplied function over an interval

Operating System: RSTS V4A-12

RSTS11-8

System Status Display - Hazeltine 2000

R. N. Bialec and K. A. Sheridan, Interactive Information Systems, Cincinnati, Ohio

Provides continuous monitoring of a RSTS System similar to Cusp VT5DPY. The program is written for the Hazeltine 2000 CRT.

Operating System: RSTS V4A-12

RSTS11-9

Project DELTA Educational Package, Section A, Mathematics Programs

DSAA: Project DELTA, University of Delaware, Newark, Delaware

Programs included are:

CROUT1	solves simultaneous linear equations by Crout algorithm
SIMEQN	solves simultaneous linear equations
CDETER	computes value of complex determinant
CALC2	extended precision calculator
FACTOR	finds prime factors of positive integers
EUCLID	computes largest common factor of two integers
DERIV	derivative of a function at a point
SQRS	express an integer as the sum of four squares
SPHERE	solves spherical triangles
LRGNUM	large number of addition and multiplication
FNCTS	computes trig functions for complex arguments
SQUARZ	computes square root of a complex number
CURFIT	performs least squares fit
INTGRT	computes numeric integral of a function
ROMINT	integrates a function by Romberg method
ROOTER	find roots of polynomials
BESSEL	calculates Bessel functions
GFFT	fast Fourier transform
PLOT	plots a function on user terminal
DEQFO	solves first order differential equation
DQEOF2	solves second order differential equation
LINFIT	best linear curve fit calculations

Operating System: RSTS V4A-12
Storage Requirement: 8K

RSTS11-10

Project DELTA Educational Package, Section B, Statistics Programs

DSAA: Project DELTA, University of Delaware, Newark, Delaware

Programs included are:

LNREG1	Simple linear regression calculations
LNREG2	simple linear regression calculations
BINOPO	probability distribution comparisons
REGCOR	regression and correlation analysis
CHISQ	computes probability of chi-square values
CHISQS	chi-square statistics for m x n contingency tables
GEOMEN	statistics of geometric distribution
PHICOE	phi-coefficient calculations
CORMAT	correlation matrix for n series of data
ANVAR1	analysis of variance for a randomized one-way design
ANVAR2	analysis of variance (Latin square design)
HISTOG	produces histogram on user terminal
RANDEV	generates random deviates
STAT1	produces statistics on two groups of unpaired data
STAT2	Mann-Whitney two sample rank test
STAT3	Spearman rank correlation coefficients

Operating System: RSTS V4A-12
Storage Requirement: 8K

RSTS11-11

Project DELTA Educational Package, Section C, Business Programs

DSAA: Project DELTA, University of Delaware, Newark, Delaware

Programs included are:

DECSN	management decision simulation for 10 to 60 participants
SETUP, MANAGE, OUTPUT	Management decision simulation for 3 teams
DYNPRO	dynamic programming model, business simulation
DEPCOM	four methods to calculate depreciation
ANNUIT	annuity analysis
EQUITY	computes cost of equity capital
INSTMT	produces income statement
LENDER	simple loan analysis
TRUINT	true annual interest rate
LESSEE	lease analysis compares lease with purchase
SALES	prints sales commission report

MKBUY	make vs. buy analysis
MORGAG	mortgage analysis
GNPSUM	gross national product summary
EXDRSK	extended risk analysis
STKRTN	stock return report
STKSMO	exponential smoothing stock guide
STKVAL	stock value report
STKINC	stock merger incentive
BNDPRC	bond price analysis
BNDYLD	bond yield analysis
BNKRSV	bank reserve calculations
CAPINV	capital investment analysis
EXSMOO	exponential smoothing on price data
BALSHT	balance sheet and income statement
INACNT	national income and product accounts
INOUT	analysis of inter-industry product flow
BUDGET	department manager's budgeting program

Operating System: RSTS V4A-12
Storage Requirement: 8K

RSTS11-12

Project DELTA Educational Package, Section D, Electronics and Production Oriented Programs

DSAA: Project DELTA, University of Delaware, Newark, Delaware

Programs included are:

ANALAD	ladder network analysis
ACNODE	AC circuit analysis
LPFLTR	design of low pass filters
MICRO	microwave parameter conversion
MIXSPR	spurious response identification
HTXFT	heat transfer in a thin plate
BEMDES	steel beam selection
DEBYE	computes Debye or Einstein functions
ASGNMT	assignment problem
LINPRO	linear programming model
LNTRND	linear trend forecasting
LQVALV	computes liquid control valve coefficients
TMFCEV	time function evaluator

Operating System: RSTS V4A-12
Storage Requirement: 8K

RSTS11-13

Games, Puzzles and Recreation - 1

David H. Ahl, Digital Equipment Corporation, Maynard, Massachusetts

GAMES, PUZZLES and RECREATION-1 is a DECtape containing 55 of the most popular RSTS-11 and RSTS/E recreational programs. Many of the programs have substantial educational value, especially for learning about principles of mathematics, probability and logic. Programs range from a comprehensive Space War simulation to a nursery stories quiz.

Operating System: RSTS V4A-12 or RSTS/E V05-21

RSTS11-14

Games, Puzzles and Recreation - 2

David H. Ahl, Digital Equipment Corporation, Maynard, Massachusetts

GAMES, PUZZLES and RECREATION-2 is a DECtape containing 49 popular RSTS-11 and RSTS/E recreational programs. A number of the programs are unique in concept and have real educational value as well as being interesting and good fun.

Some of the programs take advantage of the advanced features of BASIC-PLUS and are quite elegant in structure as well as being challenging and entertaining to run. Programs range from the games of Yahtzee and Monopoly to a smog simulation to a pizza delivery game.

Operating System: RSTS V4A-12 or RSTS/E V05-21

RSTS11-15

LSFORM - LS11 Centronix Line-Printer Driver for RSTS V4A

Mark Bramhall and Tim Hart
Submitted by: Paul Goyette, Digital Equipment Corporation, Maynard, Massachusetts

This program, when incorporated as part of the resource sharing, time-sharing System (RSTS) monitor, makes available to the user the special features of the Centronix Line Printer (DEC designation: LS11)

Operating System: RSTS V4A-12
Peripherials Required: Centronix Line Printer - Model 101
Source Language: MACRO-11

RSTS11-16

TALK - Inter Terminal Communications Program

Gregory Crim, Wabash College Computer Center, Crawfordsville, Indiana

TALK is a program which allows rapid and direct communication between terminals. It is meant to be used by anyone on the system, although its functions are more powerful if the user is running under a privileged account. Its purpose is to extend the use of the broadcast option, in limited fashion, to all users; it contains special routines which check on the state of the terminal to receive, and will prevent a non-privileged user from sending to a "busy" terminal.

Should be saved under the system library, and protected to 168.

Operating System: RSTS V4A-12
Peripherals Required: TTYs
Storage Requirement: 7K

RSTS11-17

TEXTED

Andrew W. Riebs
Submitted by: Michael A. Hall, Lawrence University, Appleton, Wisconsin

TEXTED is a general purpose on-line text editor capable of making any desired changes in an ASCII file saved on disk.

Operating System: RSTS V4A-12
Peripherals Required: Any USASCII 64-character device
Storage Requirement: 8K

RSTS11-18A

GERMAN - Adjective Ending Game

Fred White, Mankota State College
Revised by: Mark Linton, Project DELTA, University of Delaware, Newark, Delaware

GERMAN is a test on German adjective endings in certain sentences. The user tells the number of sentences he wants. Then for each sentence, an adjective ending is left out of the sentence which the user must replace with correct ending. If he is correct he will proceed to the next question; if not he will be told the correct answer and why it is correct. There are sixty-eight possible sentences to be asked. These are in a data file and GERMAN gets random ones for the user.

Operating System: RSTS V4A-12
Storage Requirement: 4K
Restrictions: Data file must exist (GERMAN.DAT)

RSTS11-18B

GEDIT - GERMAN Data File Editor

Mark Linton, Project DELTA, University of Delaware, Newark, Delaware

GEDIT is a special program for the game GERMAN, which can change or create the data file used, GERMAN.DAT. The data file used is a virtual array, while the raw data file is not. GEDIT was written to convert the raw data (included in this package) into the virtual array. Also, in the case that there is a mistake of spelling or grammar or new sentences to be entered this program can perform the necessary changes.

Operating System: RSTS V4A-12
Storage Requirement: 4K

RSTS11-19

FAST; ECONMY, ECON2; ONIONS

DSAA: Project DELTA, University of Delaware, Newark, Delaware

FAST teaches the skill of typing in a competitive manner. ECONMY, ECON2 use a model of the U. S. economy to allow the user to control the economy by his decision of government financing.

ONIONS illustrates the cobweb model for supply and demand in the environment of the American onions market.

Operating System: RSTS V4A-12
Storage Requirement: FAST - 4K; ECONMY - 7K, ECON2 - 6K; ONIONS - 5K

RSTS11-20

TREK - Star Trek Game

Aron K. Insinga, DSAA: Project DELTA, University of Delaware, Newark, Delaware

This is a game based on the "Star Trek" television show. The user is placed in command of the starship Enterprise and attempts to destroy the Klingon invasion force.

A new game is generated with each run.

Operating System: RSTS V4A-12
Storage Requirement: 8K

RSTS11-21

ROBOT and FIX

Mark Linton, Project DELTA, University of Delaware, Newark, Delaware

ROBOT is a game simulating finite state automata by enabling the user to control and change the robot's personality and mood by input of different treatments or input of an expected reaction and mood.

FIX can change or create the data file used by ROBOT.

Operating System: RSTS V4A-12
Storage Requirement: 4K

RSTS11-22

TUTRØ1 - TUTR17, BASIC Tutoring Programs

Submitted by: Mary L. Cole, Digital Equipment Corporation, Maynard, Massachusetts

This package of programs will tutor the user in the elements of the BASIC language and RSTS-11 commands. The programs are self-documenting.

RSTS11-22 (Continued)

Operating System: RSTS/E (Will run under V4A-12 with slight modification)
Storage Requirement: About 6K

RSTS11-23

NAMES and CEMGEN, Computerized Question Generation

M. L. Cole, Digital Equipment Corporation, Maynard, Massachusetts

This package consists of two programs: NAMES and CEMGEN. The programs are designed to serve as an example of the type of operation particularly well-suited to a computer.

CEMGEN produces ten questions dealing with the weight and number of atoms in samples of elements and exercises in balancing equations. The questions themselves can easily be replaced with other questions from any subject area dealing with mostly numeric answers. CEMGEN takes a standard format question, generates random numbers for the given numeric values, thereby customizing each test, quiz, or homework assignment. CEMGEN then proceeds to output the test and an answer key.

If the NAMES program is used to create a file of student names, CEMGEN will produce a different test for each student in the name file (with a form feed between tests). It will also produce a keyed answer sheet with answers to each question noted for each student. The answer sheet is produced student-by-student. If NAMES is not used, CEMGEN will produce one test and answer sheet, then ask if another is to be created.

Operating System: RSTS V4A-12
Storage Requirement: 8K

RSTS11-24

BPDEMO - Additional BASIC-PLUS Demos for the PDP-11

Patrick M. Donini, Goodyear Atomic Corporation, Piketon, Ohio

A group of five BASIC-PLUS programs which can be used for demonstration or entertainment.

Four of the programs allow the user direct participation in the run.

Included are: BUNNY, YOUR PICTURE AS SEEN BY THE COMPUTER, BLACK JACK '73', CHUCK-A-LUCK, CHINESE REMAINDER THEORM.

Some knowledge of the games is helpful but not necessary. All programs have some explanations and directions built into them.

Operating System: RSTS V4A-12
Peripherals Required: LP-11 (optional), TTY, High Speed Punch (optional)
Storage Reauirement: 45 blocks of DECtape or RK11 storage

RSTS11-25

BRAVO

Jeffrey Robbins, Northfield Mt. Hermon, Northfield, Massachusetts

BRAVO is a language program which will quiz the user about vocabulary usage in a specified language, tell whether the selected answer is right or wrong and, if wrong, give the correct answer. This version is for the Spanish language but instructions are given for conversion to other languages.

Operating System: RSTS V4A-12

RSTS11-26

ROTATE, POLY, PLOT10, XYPLOT

Students at Northfield Mt. Hermon School, Northfield, Massachusetts

ROTATE - eliminates the 'xy' term from the general quadradic equation $Ax^2 + Bxy + Cy^2 + Dx + Ey + F=O$ by counterclockwise rotation of the coordinate axes by angle theta.

POLY - deals with polynomials. It contains routines for defining a polynomial, inverting, integral, derivative, evaluation and fitting an equation to a set of points.

PLOT10 - will plot up to 10 functions

XYPLOT - will plot a function with the Y axis horizontally and the X axis vertically.

Operating System: RSTS V4A-12

RSTS11-27

GENES

Jeffrey Robbins, Northfield Mt. Herman School, Northfield, Massachusetts

GENES is a biology program designed to do simple genetic calculations using the Punnet square method. Given the total population and the number of homozygous recessives contained, GENES finds the dominants and the other parts for the Punnet squares.

Operating System: RSTS V4A-12

RSTS--128

Line Editor for RSTS-BASIC (MODIFY)

John R. Kelsoe, V. A. Hospital, Birmingham, Alabama

MODIFY will change specific parts of .BAS files or string files given a search string and a string to replace that search string. String modifications can be done in all of a source program or only in specific line numbers.

Operating System: RSTS V4A-12

RSTS11-29

EDIT

Ir A. Hemelaar, Prins Mauritslaboratories TNO, Rijswijk, The Netherlands

EDIT is a general purpose text editing program. It can be used to prepare and modify text or program files. The command structure of EDIT is compatible with that of the DOS-11 Editor. Much attention is paid to the error recovery. Almost any error can be recovered without loosing the contents of the text buffer.

Operating System: RSTS V4A-12
Storage Requirement: 6K

RSTS11-30

COSAP - Conversationally Oriented Statistical Analysis Package

Mark Williamson
Submitted by: Michael A. Hall, Lawrence University, Appleton, Wisconsin

COSAP is an integrated system of over two dozen programs, which used most of the features (virtual core, matrix, facilities, etc.) of BASIC-PLUS.

COSAP will perform twelve different statistical analyses: elementary statistics, histogram construction, Student's t tests, rank correlation, multiple Pearsonian product-moment correlation, simple regression, multiple regression, polynomial regression, step-wise regression, discriminant analysis, factor analysis, and probit analysis.

COSAP also includes a uniform format for data input and storage for all analyses, the ability to save input data on disk for later analyses, storage for descriptive DATABANK and variable labels, comprehensive data editing and transformation routines, and conversational "help" messages to assist the user who is uncertain of the input requirements for an analysis.

Operating System: RSTS V4A-12 (2 word math package)
Peripherals Required: At least 1000 blocks of mass storage (One RK05)
Storage Requirement: 8K

DECUS SERVICE CHARGES

DECUS NO.	WRITE-UP	PAPER TAPE		LISTING	DECTAPE		LINCTAPE		MAGTAPE		OTHER INFORMATION
		BIN	ASCII		U/S	D/S	U/S	D/S	U/S	D/S	
RSTS11-1a	NC	$	$ 5.	$ NA	$	$	$	$	$	$	
RSTS11-2	NC			NC	5.	17.					1 DTA (src)
RSTS11-3	NC		5.	NC							
RSTS11-5	NC		5.	NC							
RSTS11-6	NC		5.	NC							
RSTS11-7	NC			NC	5.	17.			On magtape with 9,10,11,12 $20/35		
RSTS11-8	NC		5.	NC							
RSTS11-9	NC			NC	5.	17.					RSTS11-7,9,10,11,12 offered on one magtape at $20/35
RSTS11-10	NC			NC							
RSTS11-11	NC			NC	5.	17.					
RSTS11-12	NC			NC							
RSTS11-13	NC			NA	5.	17.					1 DTA (src)
RSTS11-14	NC			NA	5.	17.					1 DTA (src)
RSTS11-15	NC			NC	5.	17.					1 DTA (obj, src)
RSTS11-16	NC		1.	NC							
RSTS11-17	NC		5.	NC							
RSTS11-18A	NC		1.	NC							
RSTS11-18B	NC		2.	NC							
RSTS11-19	NC		5.	NC							
RSTS11-20	NC		5.	NC							
RSTS11-21	NC		2.	NC							
RSTS11-22	NC			NA	5.	17.					
RSTS11-23	NC		2.	NC							
RSTS11-24	NC		5.	NA							
RSTS11-25	NC			NC							
RSTS11-26	NC		5.	NC							
RSTS11-27	NC			NC							
RSTS11-28	NC		1.	NC							
RSTS11-29	NC		5.	NC							

N/C - No Charge
N/A - Not Available

U/S - User Supplied Tape (Certified)
D/S - DECUS Supplied Tape

For information not contained on this sheet see General Information

DEC 7-(369)1112A-R1172

DECUS SERVICE CHARGES

DECUS NO.	WRITE-UP	PAPER TAPE		LISTING	DECTAPE		LINCTAPE		MAGTAPE		OTHER INFORMATION
		BIN	ASCII		U/S	D/S	U/S	D/S	U/S	D/S	
RSTS11-30	NC	$	$	$ NA	$ 5.	$17.	$	$	$	$	1 DTA (src,doc)

N/C - No Charge
N/A - Not Available

U/S - User Supplied Tape (Certified)
D/S - DECUS Supplied Tape

For information not contained on this sheet see General Information

DEC 7-(369)1112A-R1172